FIRE ALARM SYSTEM NOTES:

1. A FULLY ADDRESSABLE CLASS A U.L. LISTED AND APPROVED FIRE ALARM CONTROL SYSTEM IN ACCORDANCE WITH PROJECT SPECIFICATIONS SHALL BE UTILIZED FOR ENTIRE BLDG. FIRE DETECTION AND ALARM SYSTEM SHALL UTILIZE ANALOG TYPE "SMART" SMOKE SENSORS AND OTHER ADDRESSABLE DEVICES AS INDICATED ON PLANS AND SPECIFICATIONS.

2. THE FIRE ALARM AND CONTROL SYSTEM SHALL CONFORM TO PROJECT AND JURISDICTIONAL REQUIREMENTS OF MARCH ARB FIRE MARSHALL. LAYOUT AND REQUIREMENTS FOR FIRE ALARM SYSTEM ARE AS INDICATED ON PLANS AND IN SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DESIGN OF FIRE CONTROL SYSTEM. GENERAL REQUIRE– MENTS ARE AS FOLLOWS:

   A) FIRE ALARM CONTROL PANEL (FACP) SHALL MONITOR AND CONTROL ALL SMOKE ANDHEAT DETECTORS, MANUAL ALARM PULL STATIONS, DUCT SMOKE DETECTORS, EVACUATION ALARM DEVICES (HORNS,STROBES, ETC), ADDRESSABLE RELAY MODULES AS WELL AS REQUIRED RELAY OUTPUTS.

   B) THE FIRE ALARM SYSTEM SHALL ALSO PROVIDE FOR FOLLOWING INTERFACE FUNCTIONS:

      1. FACP SHALL PROVIDE OUTPUT CONTROL TO ALL FIRE ANNUNCIATORS AS INDICATED ON PLANS.

      2. SYSTEM AND DEVICES SHALL BE IN COMPLIANCE WITH ADA REQUIREMENTS.

      3. MONITOR FIRE WATER SUPPLY VALVE TAMPER SWITCHES INCLUDING REMOTE PIV VALVES.

3. THE FIRE ALARM SYSTEM WIRING AND CONDUIT SYSTEM SHALL BE IN STRICT ACCORDANCE WITH BUILDING CODE, NEC, NFPA 72, MANUFACTURERS, CSFM AND LOCAL CODE REQUIREMENTS. ADDRESSABLE SIGNAL "LOOPS" SHALL CONFORM TO "STYLE 6" REQUIREMENTS OF NFPA 72. THE INDICATING APPLIANCE CIRCUITS (HORNS/STROBES, REMOTE RELAY OUTPUTS, ETC) SHALL CONFORM TO "STYLE Z" REQUIREMENTS.

4. CONDUCTORS FOR THE FIRE DETECTORS AND ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH NEC. THE CONDUCTORS SHALL BE INSTALLED IN CONDUIT. FIRE ALARM CONDUCTORS SHALL NOT BE INSTALLED IN JUNCTION BOXES,OUTLET BOXES, OR CONDUITS WITH CONDUCTORS OF LIGHTING AND POWER SYSTEMS. THE SUM OF THE CROSS–AREAS OF INDIVIDUAL CONDUCTORS SHALL NOT EXCEED 40 % OF THE INTERIOR CROSS–SECTIONAL AREA OF THE CONDUIT. FIRE DETECTION AND ALARM CONDUIT SHALL NOT BE LESS THAN 3/4". FOR ADDRESSABLE LOOP CIRCUITS, UTILIZE TWISTED SHIELDED PAIR, APPROVED WIRE #14AWG AS A MINIMUM. ALL WIRING MUST BE COLOR CODED AND LABELED.

5. THE FIRE ALARM EQUIPMENT LAYOUT PLANS SHOW APPROXIMATE DEVICE LOCATION. REFER TO ARCHITECTURAL DRAWINGS FOR ROOM DIMENSIONS AND CONSTRUCTION INFORMATION. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO COORDINATE LOCATION OF ALL DEVICES WITH OTHER TRADES AND TO INSURE THAT ALL APPLICABLE NFPA REQUIREMENTS ARE MET (NEC, NFPA 13, , ETC). REQUIRED COORDINATION SHALL INCLUDE LOCATION OF ALL FIRE PROTECTION EQUIPMENT WITH THE BUILDING STRUCTURAL, MECHANICAL, AND ELECTRICAL ELEMENTS INCLUDING, BUT NOT LIMITED TO, STRUCTURAL MEMBERS AND SYSTEM AIR DUCTS AND OUTLETS, LIGHT FIXTURES AND SIMILAR EQUIPMENT AND MATERIAL THAT MAY INTERFERE WITH THE PROPER INSTALLATION AND OPERATION OF THE SYSTEM. CONTRACTOR'S INSTALLATION DRAWINGS SUBMITTED FOR APPROVAL SHALL BE COORDINATED WITH ALL TRADES.

6. AREA SMOKE DETECTORS ARE NOT TO BE LOCATED IN DIRECT PATH OF BUILDING'S SUPPLY AIR REGISTERS. LOCATE AT LEAST 3 FEET AWAY FROM REGISTERS. ALL AREA FIRE DETECTORS AT T–BAR CEILING AREAS ARE TO BE LOCATED AT CENTER OF TILE.

7. EACH FIRE ALARM SYSTEM ADDRESS POINT SHALL HAVE A CUSTOM IDENTIFYING MESSAGE PROGRAMMED AT FACP. SOFTWARE MESSAGE SHALL APPEAR AT PANELS 32 CHARACTER LCD DISPLAY IF AN ALARM OR TROUBLE CONDITION OCCURS AT ADDRESS. CONTRACTOR SHALL BE RESPONSIBLE TO GENERATE PROPOSED CUSTOM DEVICE MESSAGE IN TABULATED FORM AND OBTAIN FIELD ENGINEER'S APPROVAL PRIOR TO PROGRAMMING OF MESSAGES. THE FIRE ALARM CONTRACTOR IS ALSO RESPONSIBLE FOR COMPLETE PROGRAMMING AND FUNCTIONAL TESTING OF ENTIRE SYSTEM.

8. ALL SPRINKLER SYSTEM SWITCHES (TAMPER, WATERFLOW, SUPERVISORY AIR, ETC) ARE TO BE FURNISHED AND INSTALLED BY SPRINKLER CONTRACTOR (SECTION 15330). ALL ELECTRICAL WIRING TERMINATIONS AND CHECKOUT AT DEVICE AND FACP SHALL BE BY FIRE ALARM CONTRACTOR.

9. DUCT TYPE SMOKE DETECTORS WITH PROPERLY SIZED SAMPLING TUBES SHALL BE FURNISHED AND INSTALLED WHERE INDICATED IN ACCORDANCE WITH NFPA 72, CBC AND MANUFACTURER'S REQUIREMENTS. UPON ACTIVATION OF A DUCT DETECTOR, THE ASSOCIATED HVAC UNIT SHALL SHUTDOWN AUTOMATICALLY THROUGH OPERATION OF RELAY CONTACTS AT DETECTOR AND AN ALARM CONDITION SHALL OCCUR AT FACP. IF AIR HANDLING UNIT HAS A "SMOKE PURGE" MODE, ACTIVATION OF THE PURGE MODE SHALL OVERRIDE THE UNIT SHUT–DOWN. THE SMOKE DETECTION AND CONTROL FUNCTIONS FOR HVAC UNITS SHALL HAVE THE HIGHEST PRIORITY OVER ALL OTHER HVAC CONTROL MODES. WHERE DUCT DETECTORS ARE INSTALLED ABOVE A DROP CEILING, A REMOTE ALARM INDICATING LAMP SHALL BE FLUSH MOUNTED IN CEILING DIRECTLY BELOW DETECTOR. COORDINATE INSTALLATION AND LOCATION OF EACH DUCT DETECTOR WITH MECHANICAL CONTRACTOR. DETECTOR MUST BE INSTALLED IN A SERVICE ACCESSIBLE LOCATION. PROVIDE ALL ELECTRICAL CONNECTIONS INCLUDING SHUTDOWN WIRING TO AIR HANDLER STARTERS AND SMOKE DAMPERS. COORDINATE SHUTDOWN WIRING WITH HVAC CONTROLS AND ELECTRICAL CONTRACTORS.

10. ALL FIRE ALARM CONTROL PANELS, ANNUNCIATOR PANELS AND DEVICES SHALL BE NEATLY FLUSH MOUNTED WITH CONCEALED ELECTRICAL CONDUIT IN AREAS WITH FINISHED WALLS AND CEILINGS. FIRE DETECTOR AND ALARM SYSTEM CONDUIT RUNS SHALL BE STRAIGHT, NEATLY ARRANGED, PROPERLY SUPPORTED AND PERPENDICULAR TO WALLS, CEILINGS AND PARTITIONS. ALL CONDUIT AND WIRING SHALL BE ROUTED IN SUCH A MANNER THAT IT WILL BE CONCEALED FROM VIEW SUCH AS ABOVE CEILING, IN WALLS AND BELOW ACCESS FLOORS. IN UNFINISHED AREAS SUCH AS MECHANICAL ROOMS AND SIMILAR SPACES CONDUIT NEED NOT BE CONCEALED.

11. LOCATION AND INSTALLATION METHODS FOR "ADDRESSABLE POINT MONITOR MODULES" MUST BE INDICATED ON SHOP DRAWING SUBMITTALS. MODULES ARE TO BE INSTALLED IN APPROVED NEMA JUNCTION BOX OR ENCLOSURE IN ACCESSIBLE LOCATIONS. WEATHERPROOF ENCLOSURES WITH SEALTIGHT FLEXIBLE CONDUIT ARE REQUIRED AT AREAS SUBJECT TO HIGH MOISTURE (I.E. RISER AND EQUIPMENT ROOMS).

12. PRIOR TO BEGINNING INSTALLATION CONTRACTOR IS RESPONSIBLE TO OBTAIN APPROVAL OF SHOP DRAWINGS FROM CONTRACTING OFFICER. A SET OF APPROVED DRAWINGS IS TO BE KEPT AT JOB SITE FOR INSPECTIONS AT ALL TIMES. IN ADDITION, CONTRACTOR IS RESPONSIBLE TO MAINTAIN A CURRENT "AS–BUILT" WORKING SET OF DRAWINGS AT JOB SITE. AS–BUILT DRAWINGS SHALL INDICATE EXACT CONDUIT ROUTING AND SIZING, JUNCTION BOX LOCATION, CONDUCTOR COLORS, COUNTS AND SIZES. AS–BUILT DRAWINGS SHALL ALSO CLEARLY INDICATE LOCATION OF ALL DEVICES AND DETAILS OF INTERFACE WITH AUXILIARY EQUIPMENT. (HVAC SHUTDOWN, SUPPRESSION SYSTEM INTERFACE CENTRAL MONITORING, ETC.).

13. ALL FIRE ALARM EQUIPMENT SUPPLIED SHALL BE LISTED BY STATE FIRE MARSHAL.(CSFM)

14. REFER TO PROJECT SPECIFICATIONS AND FIRE ALARM AND OPERATION MATRIX FOR FURTHER REQUIREMENTS.

FIRE ALARM SYSTEM OPERATION MATRIX

	MANUAL PULL STATION	AREA COVERAGE FIRE SENSOR	HVAC UNIT DUCT SMOKE SENSOR	SPRINKLER WATER FLOW SWITCH	SPRINKLER VALVE TAMPER SWITCH	POWER FAILURE	DUCT SMOKE DETECTOR
ANNUNCIATE AT FIRE CONTROL PANEL (ALARM OR TROUBLE)	●	●	●	●	●	●	●
ANNUNCIATE AT 24 HOUR (1) ATTENDED REMOTE LOCATION AND BLDG ENTRANCE ANNUNCIATOR PNLS	●	●	●	●	●	●	●
ACTIVATE AUDIBLE/ VISUAL ALARM SIGNAL THROUGHOUT BLDG.	●	●	●	●			●
SHUT–DOWN LOCAL AIR HANDLING UNIT		●	●				●
ACTIVATE (CLOSE) LOCAL FIRE/SMOKE DAMPER		●	●				●

FOOTNOTES

(1) BUILDING FIRE ALARM PANEL SHALL BE CONNECTED TO THE BASE "MONACO" RADIO TRANSMITTER SYSTEM. SYSTEM FIRE ALARM AND TROUBLE SIGNALS SHALL BE TRANSMITTED TO BASE FIRE CONTROL (24 HOUR/7 DAY FACILITY).

(2) THE BUILDING WILL BE COMPLETELY SPRINKLED AND MONITORED BY THE FIRE ALARM CONTROL PANEL.

FIRE ALARM SYSTEM LEGEND

P	DESIGNATION AT DEVICE INDICATES DEVICE ASSOCIATED WITH PREACTION PROTECTED AREA – TYP.
E	DESIGNATION AT DEVICE INDICATES DEVICE ASSOCIATED WITH ELEVATOR RECALL – TYP.
A	INDICATES ABOVE CEILING
C	INDICATES BELOW CEILING MOUNTING
WP	INDICATES WATERPROOF
FACP	FIRE ALARM AND PREACTION CONTROL PANEL WITH POWER SUPPLY AND BATTERY PACK + 72" TO TOP
FATC	FIRE ALARM TERMINAL CABINET
ANN	ANNUNCIATOR PANEL +72" TO TOP
DH	MAGNETIC DOOR HOLDER
FSD	FIRE/SMOKE DAMPER (SEE MECHANICAL)
F	FIRE ALARM MANUAL STATION (ADDRESSABLE) +48" AFF TO CENTER
(1) F	FIRE ALARM AUDIO/VISUAL (HORN/STROBE) SIGNAL, ADA COMPLIANT (80")
(1) M	MINI–HORN/STROBE ASSEMBLY, ADA (80")
(1) S	FIRE ALARM STROBE LIGHT, ADA (80")
F	FIRE ALARM HORN (90" AFF)
F	ALARM BELL (WATERFLOW)
M	MASS NOTIFICATION STROBE LIGHT, ADA (80")
M	MASS NOTIFICATION SPEAKER, ADA (80")
P	PHOTOELECTRIC TYPE SMOKE SENSOR – ANALOG ADDRESSABLE
PE	SMOKE DETECTOR FOR ELEVATOR RECALL
T	THERMAL SENSOR – ADDRESSABLE TYPE
D	DUCT SMOKE DETECTOR ASSEMBLY – PHOTOELECTRIC TYPE (ADDRESSABLE) w/AUX. CONTACTS
	ADDRESSABLE POINT MONITOR MODULE (APMM)
CR	CONTROL RELAY MODULE (ADDRESSABLE) USE AS REQUIRED
MM	MONITOR MODULE (ADDRESSABLE) USE AS REQUIRED
HX	HEAT DETECTOR. F = FIXED TEMPERATURE. R = RATE OF RISE.
	END OF LINE RESISTOR (FOR CLASS B CIRCUITS)
F	FIRE ALARM SYSTEM CIRCUIT
FD SD	FIRE/SMOKE DAMPER (PROVIDED BY MECH)
* TS	VALVE TAMPER (SUPERVISORY) SWITCH
* FS	WATER FLOW ALARM SWITCH
* SA	SUPERVISORY AIR PRESSURE SWITCH
* S	SOLENOID VALVE ACTIVATOR

(1) NO PORTION OF VISUAL DEVICE LENS SHALL BE LESS THAN 80" AFF NOR EXCEED 96" AFF. DEVICES TO BE INSTALLED AT UNIFORM HEIGHT THROUGHOUT. DESIGNATION AT VISUAL DEVICE (15/30/75/110) INDICATES CANDELLA RATING OF DEVICE.

* DEVICE PROVIDED UNDER SECTION 211313 (SPRINKLER CONTRACTOR)

FIRE PROTECTION DRAWINGS ARE FOR PERFORMANCE/SCOPE ONLY. CONTRACTOR IS REQUIRED TO SUBMIT SYSTEM SHOP DRAWINGS TO CONTRACTING OFFICER FOR REVIEW AND APPROVAL.

ARCHITECT OF RECORD
DMJM H&N | AECOM
405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

DESIGN ARCHITECTS
WILLIAM MCDONOUGH + PARTNERS
Architecture + Community Design
700 EAST JEFFERSON STREET
CHARLOTTESVILLE, VIRGINIA 22902
T 434.979.1111 F 434.979.1112 www.mcdonoughpartners.com

CONSULTANTS
CIVIL ENGINEER:
DMJM HARRIS
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2501 F 714.567.2777

LANDSCAPE ARCHITECT:
FIRM NAME
ADDRESS
ADDRESS
PHONE

MECHANICAL, ELECTRICAL & PLUMBING ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

STRUCTURAL ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

LANDSCAPE CONSULTANT:
SITEWORKS STUDIO
826-C HINTON AVENUE
CHARLOTTESVILLE, VIRGINIA 22902

LIGHTING CONSULTANT:
LOISOS & UBBELOHDE
1917 CLEMENT AVENUE, BLDG 10A
ALAMEDA, CALIFORNIA 94501
T 510.521.3800 F 510.521.3820

CONSTRUCTION MANAGER:
FIRM NAME
ADDRESS
ADDRESS
PHONE

ARCHITECT/ENGINEER STAMP

PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE		
1	10/20/2008	30% PRICING
2	11/07/2008	30% DESIGN REVISION
3	12/12/2008	60% INTERNAL QA/QC & COST ESTIMATE
4	12/19/2008	60% PRE-FINAL, NASA REVIEW
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N232 COLLABORATIVE SUPPORT FACILITY

FIRE ALARM LEGEND AND ABBREVIATIONS

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SCALE		INDEX	SHEET OF

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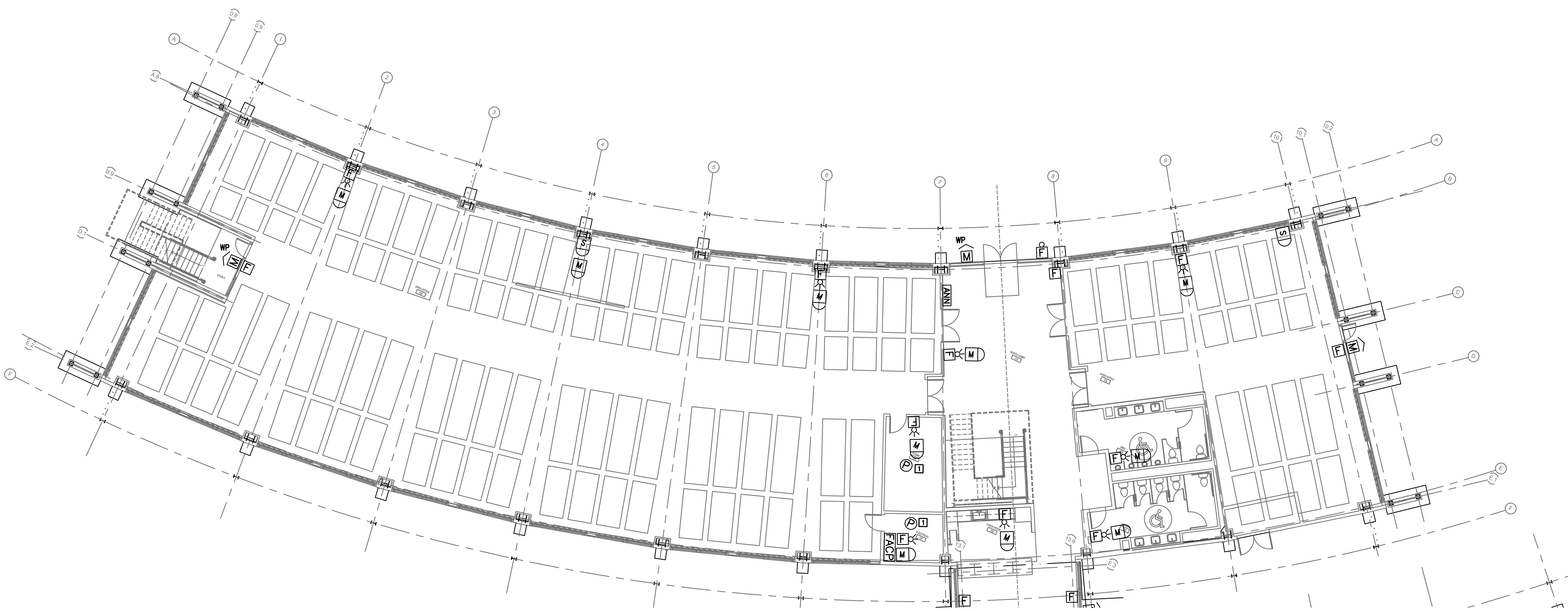
GENERAL NOTES:

1. SEE SHEET FA001 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PLAN NOTES:

[1] PHOTOELECTRIC SMOKE DETECTOR MOUNTED OVERHEAD.



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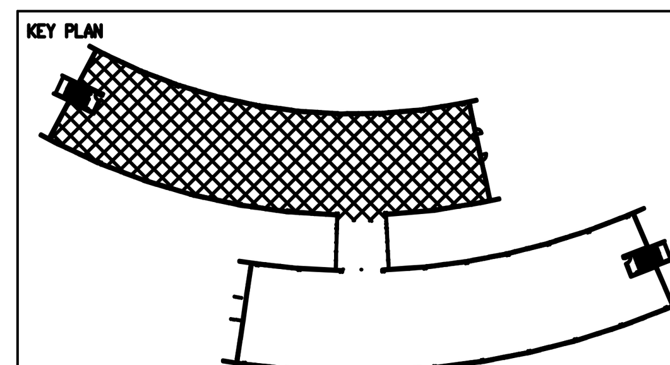

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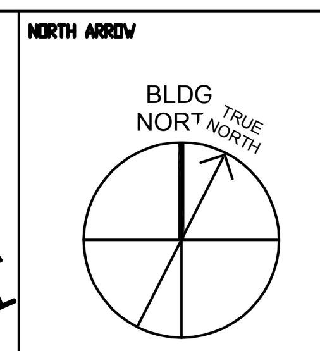

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PROJECT STATUS

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SAFETY		DATE
SUPERVISOR		DATE

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FIRST FLOOR FIRE ALARM PLAN NORTH WING

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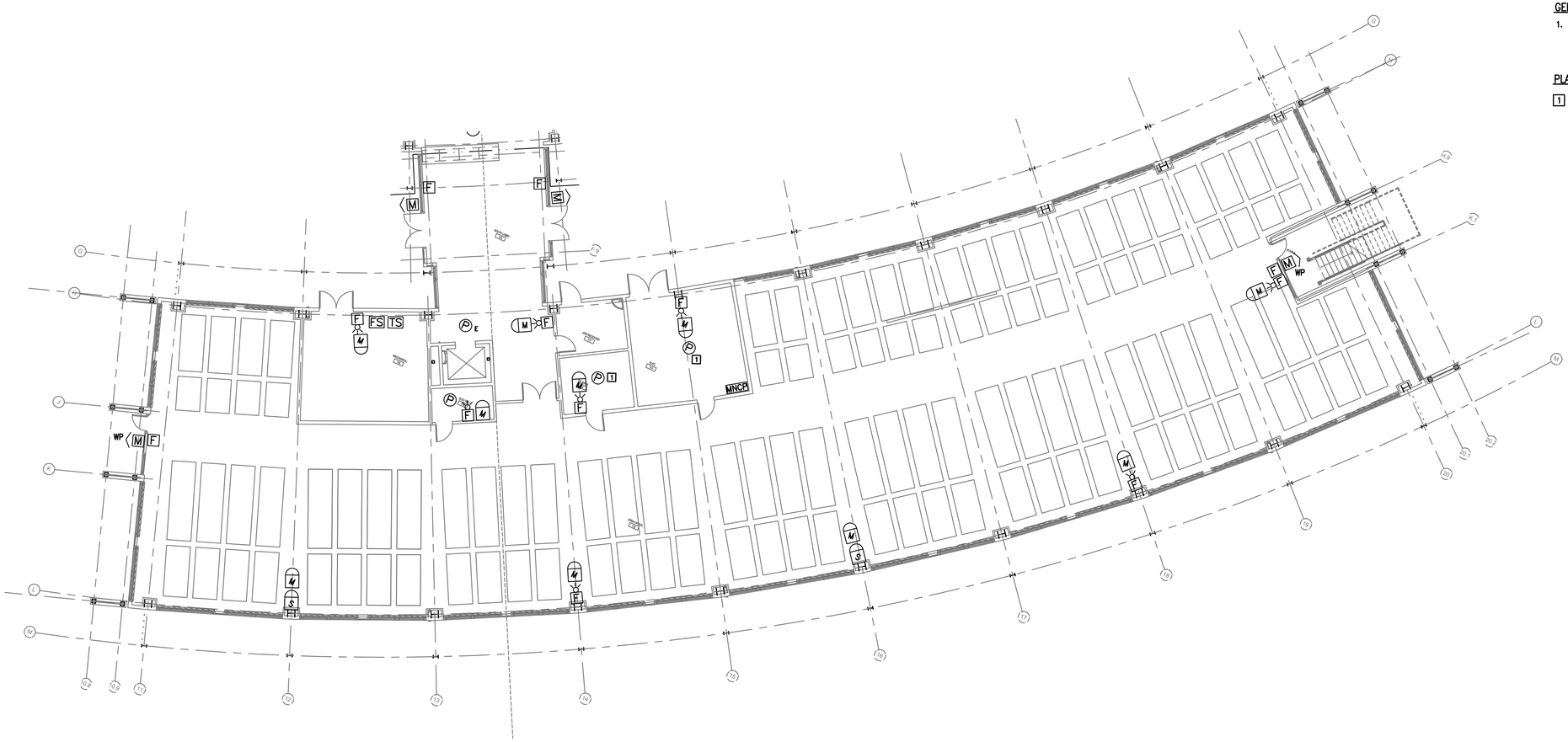

GENERAL NOTES:

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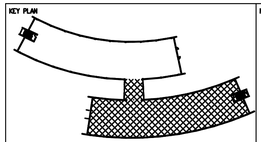
PLAN NOTES:

[1] PHOTOELECTRIC SMOKE DETECTOR MOUNTED OVERHEAD.

KEY PLAN



NORTH ARROW

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PROJECT STATUS

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FIRST FLOOR
FIRE ALARM PLAN
SOUTH WING

SIZE	CAGE CODE		REV
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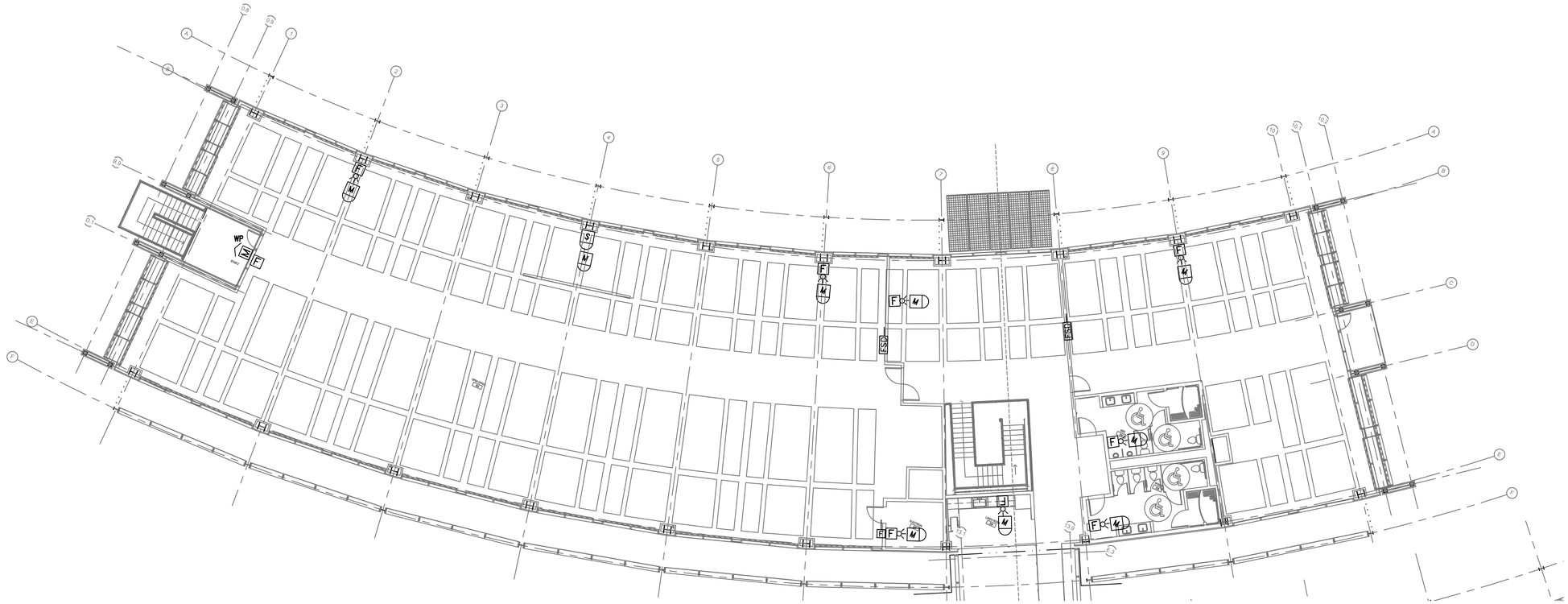
GENERAL NOTES:

1. SEE SHEET FA001 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PLAN NOTES:

[1] PHOTOELECTRIC SMOKE DETECTOR MOUNTED OVERHEAD.



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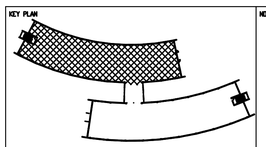

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Moffet Field, California

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SECOND FLOOR FIRE ALARM PLAN NORTH WING

SIZE	CAGE CODE		REV
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SCALE	INDEX	SHEET	OF

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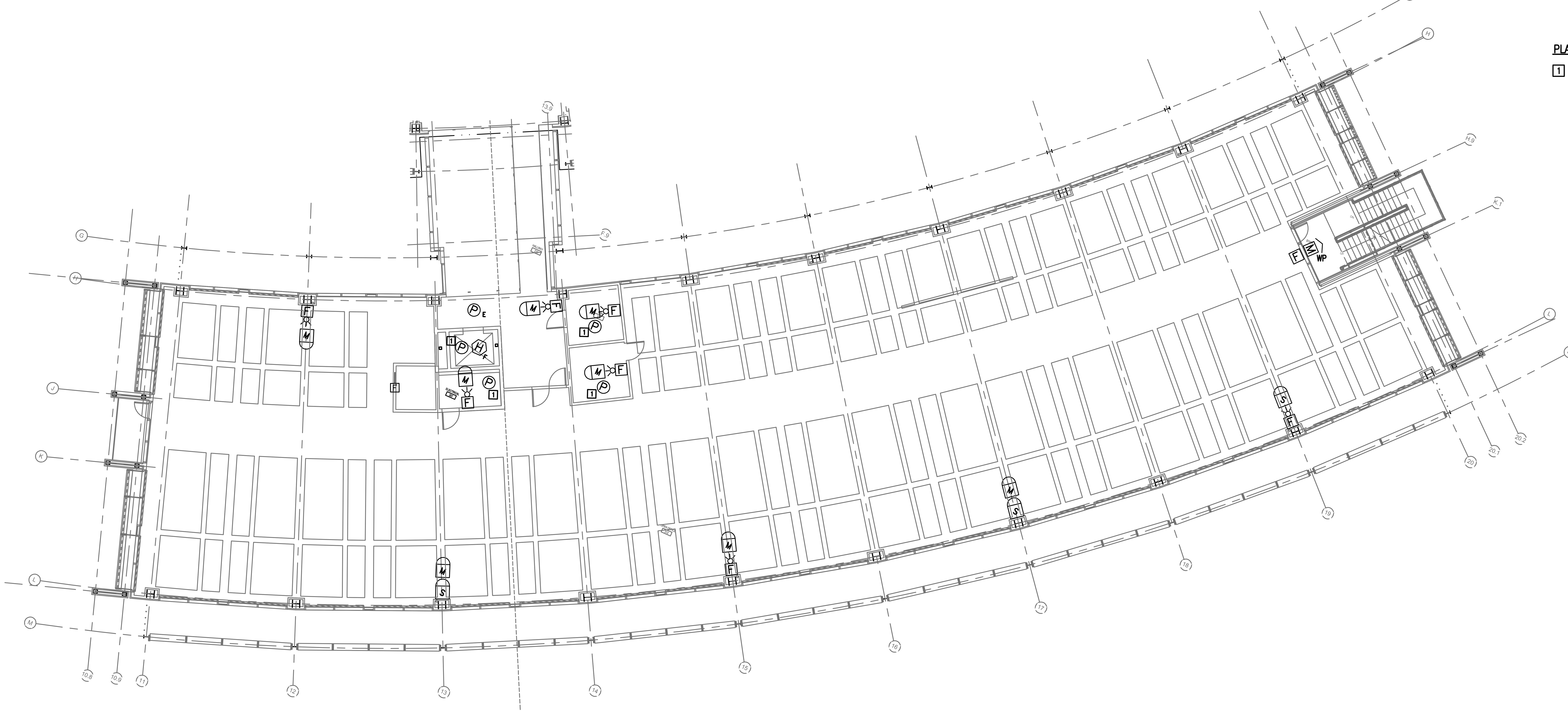

GENERAL NOTES:

1. SEE SHEET FA001 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

PLAN NOTES:

[1] PHOTOELECTRIC SMOKE DETECTOR MOUNTED OVERHEAD.

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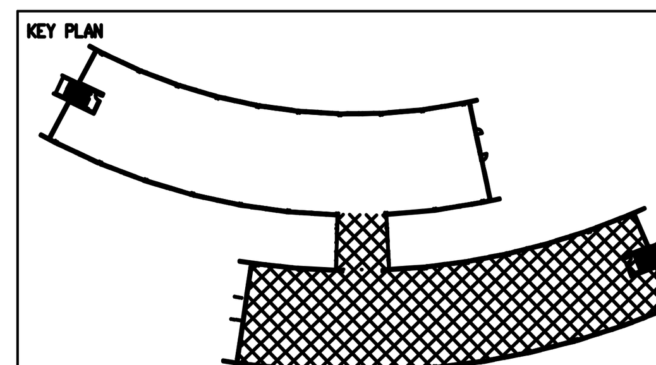

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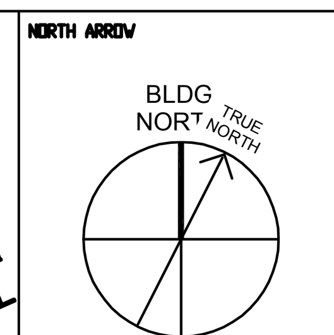

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REQUESTOR		DATE
R&QA		DATE
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SECOND FLOOR FIRE ALARM PLAN SOUTH WING

SIZE	CAGE CODE			REV
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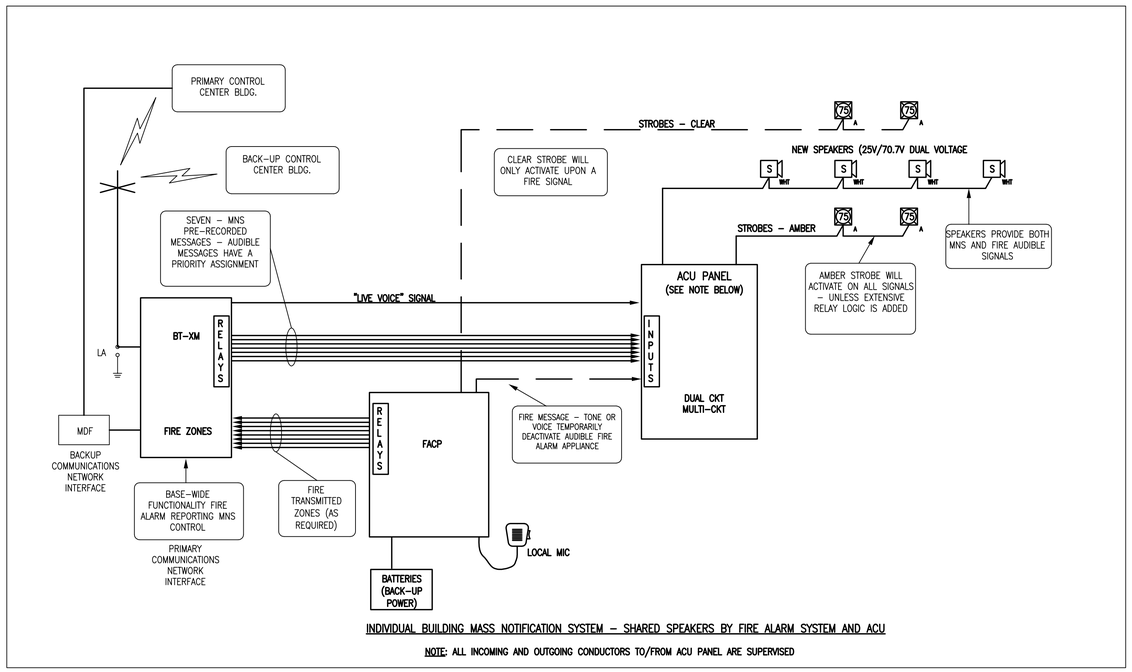
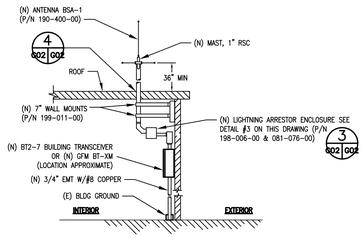
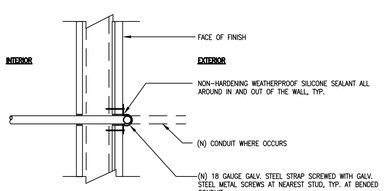


INDIVIDUAL BUILDING MASS NOTIFICATION SYSTEM – SHARED SPEAKERS BY FIRE ALARM SYSTEM AND ACU

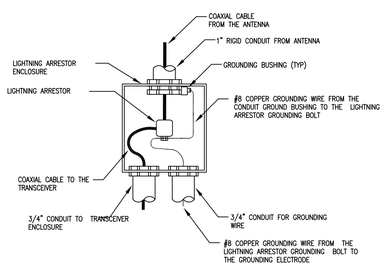
NOTE: ALL INCOMING AND OUTGOING CONDUCTORS TO/FROM ACU PANEL ARE SUPERVISED



2A (N) ANTENNA DETAIL
G02 FP51 & FP54 SCALE: NTS SIDE VIEW



4 WALL PENETRATION DETAIL
SCALE: NTS SECTION VIEW



3 LIGHTNING ARRESTOR ENCLOSURE
SCALE: NTS SECTION VIEW

ARCHITECT OF RECORD
DMJM H&N | AECOM
405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

DESIGN ARCHITECTS
WILLIAM MCDONOUGH + PARTNERS
Architecture + Community Design
700 EAST JEFFERSON STREET
CHARLOTTESVILLE, VIRGINIA 22902
T 434.979.1111 F 434.979.1112 www.mcdonoughpartners.com

CONSULTANTS
CIVIL ENGINEER:
DMJM HARRIS
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2501 F 714.567.2777

LANDSCAPE ARCHITECT:
FIRM NAME
ADDRESS
ADDRESS
PHONE

MECHANICAL, ELECTRICAL & PLUMBING ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

STRUCTURAL ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

LANDSCAPE CONSULTANT:
SITEWORKS STUDIO
826-C HINTON AVENUE
CHARLOTTESVILLE, VIRGINIA 22902

LIGHTING CONSULTANT:
LOISOS & UBBELOHDE
1917 CLEMENT AVENUE, BLDG 10A
ALAMEDA, CALIFORNIA 94501
T 510.521.3800 F 510.521.3820

CONSTRUCTION MANAGER:
FIRM NAME
ADDRESS
ADDRESS
PHONE

ARCHITECT/ENGINEER STAMP

PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE		
1	10/20/2008	30% PRICING
2	11/07/2008	30% DESIGN REVISION
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DESIGNED N ZECH	DATE	
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PRELIMER	DATE	
REQUESTOR	DATE	
FSQA	DATE	
SAFETY	DATE	
SUPERVISOR	DATE	

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE ALARM/ MASS NOTIFICATION RISER DIAGRAM

SIZE	CAGE CODE		REV
D	25307	A232-0800- FA401	
SCALE	INDEX	SHEET OF	

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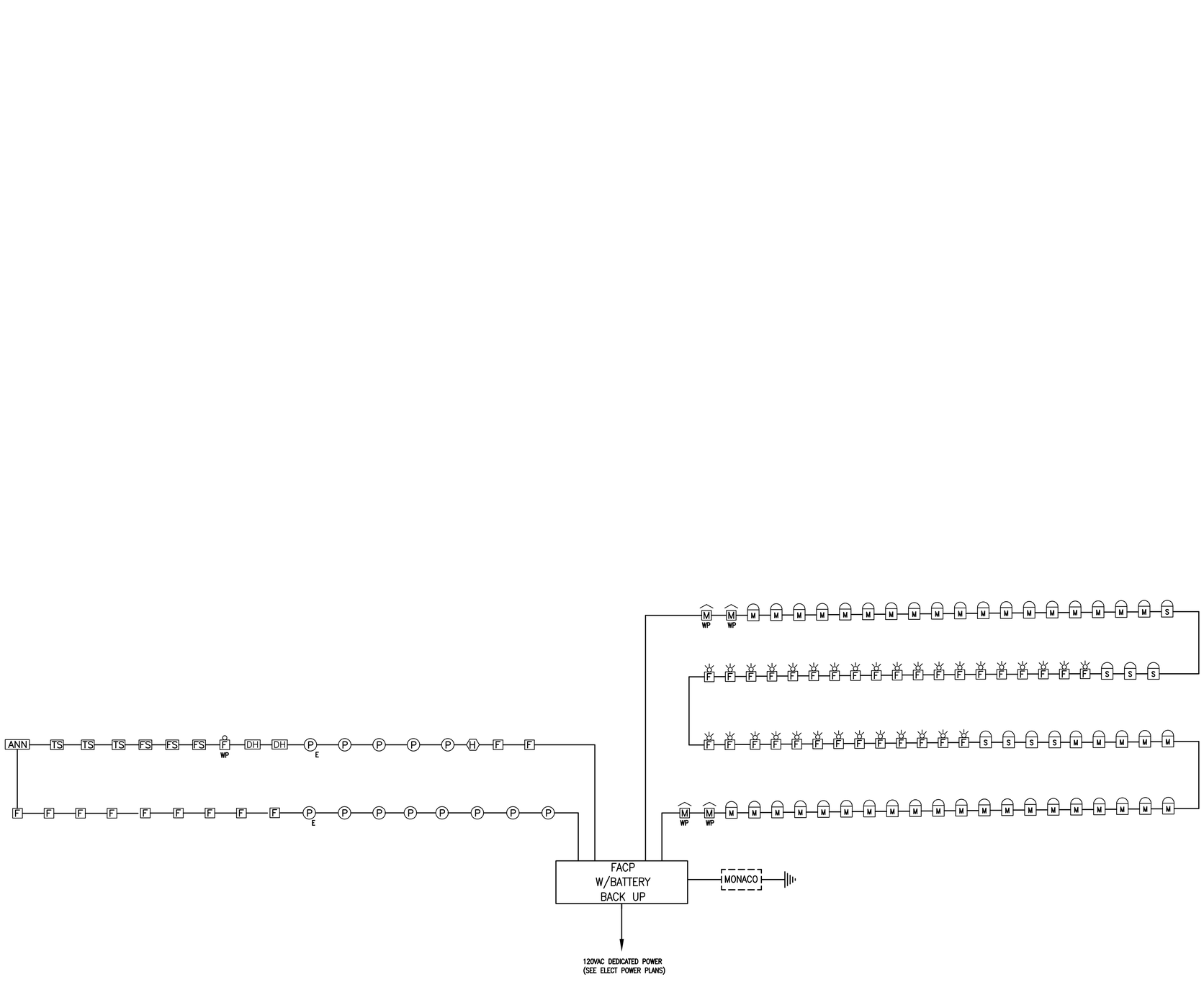

FIRE DETECTION, ALARM, AND NOTIFICATION SYSTEM RISER DIAGRAM

ARCHITECT OF RECORD

DMJM H&N | AECOM

405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

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WILLIAM MCDONOUGH + PARTNERS
Architecture + Community Design

700 EAST JEFFERSON STREET
CHARLOTTESVILLE, VIRGINIA 22902
T 434.979.1111 F 434.979.1112 www.mcdonoughpartners.com

CONSULTANTS

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999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

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CHARLOTTESVILLE, VIRGINIA 22902

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DESIGNED	N. ZECH	DATE
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PRELIMGR		DATE
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NASA		DATE
SAFETY		DATE
SUPERVISOR		DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE ALARM/
MASS NOTIFICATION
RISER DIAGRAM

SIZE	CAGE CODE		REV
D	25307	A232-0800- FA402	
SCALE		INDEX	SHEET OF

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DATE: Feb 17, 2009 - 9:51:41 am Images: P:\My Pictures\Lutron\Lutron Logo (color).bmp*
Xrefs: XBGR

FIRE PROTECTION NOTES:

1. THE ENTIRE ADDITION SHALL BE PROTECTED WITH FULLY AUTOMATIC FIRE SPRINKLERS. AREAS ARE TO BE PROTECTED IN ACCORDANCE WITH "SPRINKLER SYSTEM DESIGN" TABLE THIS SHEET.
2. AUTOMATIC SPRINKLER SYSTEM SHALL BE DESIGNED, FABRICATED, INSTALLED, TESTED AND PLACED INTO SERVICE IN ACCORDANCE WITH NFPA 13, CONTRACT DRAWINGS, SPECIFICATIONS, FM GLOBAL AND THE UNIFORM FEDERAL CODE (UFC) REQUIREMENTS. PRIOR TO INSTALLATION THE CONTRACTOR SHALL SUBMIT PLANS AND HYDRAULIC CALCULATIONS TO FM GLOBAL, NASA FIRE MARSHAL'S OFFICE, BUILDING DEPARTMENT AND PROJECT ENGINEER FOR APPROVAL. NO INSTALLATION WORK SHALL BE STARTED UNTIL APPROVAL IS OBTAINED. THE CONTRACTOR SHALL BE FULLY C-16 LICENSED IN THE STATE TO PERFORM COMPLETE DESIGN AND INSTALLATION OF FIRE PROTECTION SYSTEM.
3. C16 LICENSED SPRINKLER SYSTEM CONTRACTOR SHALL COORDINATE ALL ALARM CIRCUIT CONNECTIONS AT FIRE ALARM CONTROL PANEL WITH THE LICENSED FIRE ALARM DETECTION CONTRACTORS.
4. ALL FIRE PROTECTION EQUIPMENT SUPPLIED SHALL BE APPROVED BY THE ENGINEER, CSFM AND AUTHORITIES HAVING JURISDICTION.
5. ALL SPRINKLER SYSTEMS SHALL BE BRACED AND SUPPORTED IN ACCORDANCE WITH NFPA 13 REQUIREMENTS WITH DUE ALLOWANCES FOR SYSTEM THRUST AND WATER HAMMER FORCES. LOCATIONS AND DETAILS OF ALL PIPING SUPPORTS AND BRACES ARE TO BE INDICATED ON CONTRACTORS SHOP DRAWINGS.
6. ALL FIRE SPRINKLER SYSTEM DESIGN AND SHOP DRAWINGS MUST BE SUBMITTED TO AND APPROVED BY NASA FIRE MARSHALL.
7. LOCATION OF AUXILLARY DRAINS SHALL BE ACCURATELY DETERMINED PER NFPA 13 AND INSTALLED IN THE FIELD. THE SPRINKLER SYSTEM DRAINAGE SHALL DISCHARGE TO OUTSIDE THE BUILDING TO A DRAIN CAPABLE OF ACCEPTING FULL FLOW UNDER SYSTEM PRESSURE OR TO A LOCATION WHERE WATER DRAINAGE WILL NOT RESULT IN PROPERTY DAMAGE.
8. ALL PIPE PENETRATIONS AT FIRE RATED WALLS SHALL BE SEALED WITH FIRE RATED MATERIAL IN ACCORDANCE WITH APPROVED UL LISTED FIRE SEAL SYSTEM ASSEMBLY.
9. ALL OF THE SPRINKLER PIPING NETWORK EXCEPT SPRINKLER HEAD DROPS SHALL BE SLOPED FOR COMPLETE DRAINAGE. ALL THE ISOLATED LOW POINTS SHALL BE EQUIPPED WITH AUXILLARY DRAINS. DRAINS SHALL CONSIST OF A VALVE NOT SMALLER THAN 3/4" AND A BRASS PLUG.
10. THE CONTRACTOR SHALL COORDINATE THE LOCATIONS OF ALL FIRE PROTECTION EQUIPMENT WITH THE BUILDING'S STRUCTURAL, MECHANICAL AND ELECTRICAL ELEMENTS INCLUDING, BUT NOT LIMITED TO STRUCTURAL MEMBERS, AIR DUCTS AND OUTLETS, LIGHT FIXTURES AND SIMILAR EQUIPMENT AND MATERIALS THAT MAY INTERFERE WITH THE PROPER INSTALLATION AND OPERATION OF THE SYSTEM. THE CONTRACTOR'S COORDINATION SHALL BE REFLECTED ON HIS INSTALLATION DWGS THAT ARE SUBMITTED FOR APPROVAL.
11. THE FIRE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY CALCULATED PER NFPA 13. SEE SPRINKLER SYSTEM DESIGN SCHEDULE TABLE FOR REQUIREMENTS.
12. THE SPRINKLER PIPING IS TO BE SIZED TO CONFORM WITH THE CONTRACTORS HYDRAULIC CALCULATIONS BASED UPON AVAILABLE WATER SUPPLY SYSTEM.
13. HYDRAULIC CALCULATIONS MUST BE SUBMITTED TO PROVE THE PROPER DESIGN DENSITIES FOR ALL SEPARATELY CLASSIFIED AREAS.
14. THE INSPECTION, HYDROSTATIC TEST AND FLUSHING OF THE SPRINKLER SYSTEM SHALL BE WITNESSED BY THE FIRE DEPTARTMENT.
15. SPACING AND DETAIL OF THE SUPPORT AND BRACING OF FIRE SPRINKLER PIPING SHALL COMPLY WITH LATEST EDITION OF NFPA 13. PROVIDE ANCHORAGE DETAIL AND CALCULATIONS FOR THE CONNECTION OF SWAY BRACING TO THE STRUCTURE. DESIGN LOADS FOR THE ANCHORAGE MAY BE COMPUTED PER TABLE 4-5.4.3,5.1 (a) & (b) OF THE NFPA 13.
16. THE SYSTEM SHALL EMPLOY THE USE OF U.L. APPROVED MATERIALS AND DEVICES.
17. AUTOMATIC SPRINKLER SYSTEM SHALL BE SUPERVISED BY AN APPROVED CENTRAL PROPRIETARY OR REMOTE STATION SERVICE OF A LOCAL ALARM WHICH WILL GIVE AN AUDIBLE SIGNAL AT A CONSTANTLY ATTENDED LOCATION.
18. COORDINATE ALL FIRE PROTECTION TAMPER SWITCHES AND FLOW SWITCHES WITH ELECTRICAL SECTION.
19. ALL VALVES SHALL HAVE A PERMANENTLY AFFIXED SIGN INDICATING ITS FUNCTION.
20. THE ENTIRE PIPING SYSTEM SHALL BE HYDROSTATICALLY TESTED AT 200 PSI FOR TWO HOURS OR AT 50 PSI ABOVE THE SYSTEM OPERATING PRESSURE, WHICHEVER IS GREATER.
21. THE BUILDING N232 FIRE PROTECTION SYSTEM MUST BE FULLY MONITORED BY THE FIRE ALARM SYSTEM INCLUDING BUT NOT LIMITED TO: PIV'S, SECTIONAL CONTROL VALVES, WATER FLOW, ETC.
22. SPRINKLERS WILL BE REQUIRED IN AREAS ABOVE AND BELOW THE CEILING.

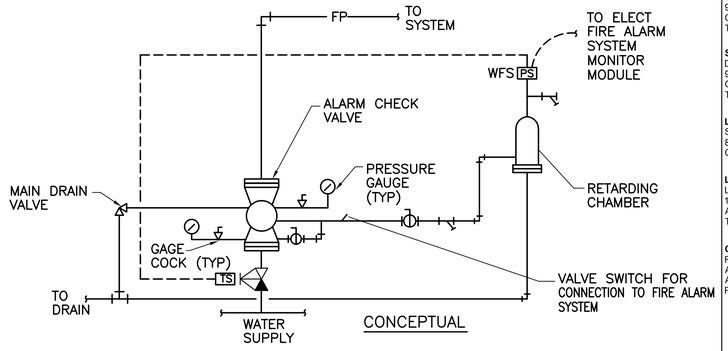
SPRINKLER SYSTEM DESIGN SCHEDULE

BUILDING AREA	SYMBOL	HAZARD CLASS	SYSTEM TYPE	DENSITY (GPM PER SQ. FT.)	SPRINK. SYS. HYDRAULIC DESIGN AREA (SQ. FT.)	SPRINKLER HEADS				HOSE ALLOWANCE OUTSIDE (GPM)	REMARKS	DURATION MINUTES
						MAX. SPACING (SQ. FT.)	TEMP. °F	POSITION	TYPE			
OFFICE AREAS		ORDINARY HAZARD GRP. 1	WET PIPE	0.15	1500	130	165	PENDENT (RECESSED) UPRIGHT	BRASS (IN UNFINISHED CEILING AREAS)	500	REFER TO SPECIFICATION SECTION 15300, PART 3, ITEM 3.1A	90

FIRE SPRINKLER LEGEND & ABBREVIATIONS

ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
CLG	CEILING
CONT	CONTINUATION
CSFM	CALIFORNIA STATE FIRE MARSHALL
DET	DETAIL
DEPT	DEPARTMENT
DIA	DIAMETER
DN	DOWN
EL	ELEVATION
ELECT	ELECTRICAL
EQUIP	EQUIPMENT
°F	DEGREES FAHRENHEIT
FIN	FINISHED
FLR	FLOOR
FT	FEET
FDC	FIRE DEPT. CONNECTION
GAL	GALLONS
GPM	GALLONS PER MINUTE
IN.	INCH
LBS	POUNDS
MAX	MAXIMUM
MIN	MINIMUM
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NTS	NOT TO SCALE
OS&Y	OUTSIDE SCREW AND YOKE VALVE
SYS	SYSTEM
SQ.FT.	SQUARE FOOT
SPRNK	SPRINKLER
UL	UNDERWRITERS LABORATORIES
W/	WITH

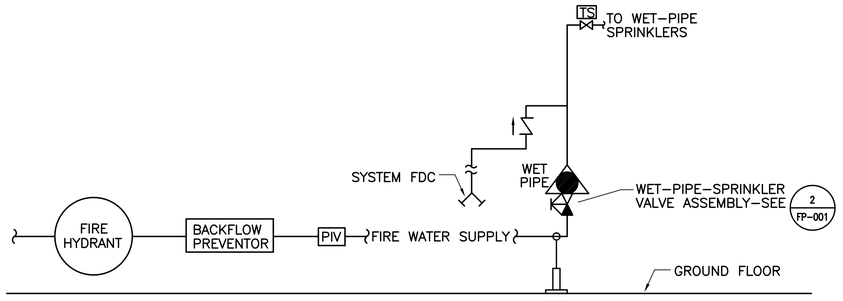
	WET PIPE SPRINKLER RISER
	OUTSIDE SCREW AND YOKE VALVE (SUPERVISED)
	PRE-ACTION VALVE ASSEMBLY
	GATE VALVE (w/SUPERVISORY SWITCH)
	FIRE DEPARTMENT CONNECTION
	CHECK VALVE
	CHECK VALVE w/BALL DRIP
FS	FLOW SWITCH, VANE TYPE
	PRESSURE GAUGE
TS	TAMPER SWITCH
101	ROOM NUMBER
F	ALARM BELL, 10 INCH, WEATHERPROOF, 90"AFF
—FP—	FIRE PROTECTION PIPING



WET PIPE SPRINKLER VALVE DETAIL

SCALE: NONE

2 FP-001



NOTE:

RISER MANIFOLD IS SHOWN CONCEPTUALLY ONLY, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL PIPING FITTINGS AND VALVE TRIM NECESSARY FOR A COMPLETE, APPROVED AND OPERATIONAL SYSTEM. REFER TO VALVE DETAIL DWGS. FOR MORE DETAIL ON TRIM PIPING FOR EACH VALVE ASSEMBLY. CONNECTIONS TO FIRE ALARM SYSTEM (FACP) NOT SHOWN.

SPRINKLER RISER ELEVATION DETAIL

SCALE: NONE (CONCEPTUAL)

1 FP-001

FIRE PROTECTION DRAWINGS ARE FOR PERFORMANCE/SCOPE ONLY. CONTRACTOR IS REQUIRED TO SUBMIT SPRINKLER SHOP DRAWINGS FOR REVIEW AND APPROVAL. FIRE PROTECTION CONTRACTOR SHALL DO HIS OWN FLOW AND PRESSURE TESTS IN COORDINATION WITH NASA FIRE MARSHALL.

THE FIRE MAIN RUNS EAST AND WEST ALONG THE SOUTH SIDE OF THE BUILDING. THE EXACT PIPING LAYOUT ON SITE SHALL BE VERIFIED IN THE FIELD, BY SURVEYING AND FROM THE NASA MANAGER. IF DRAWINGS ARE NOT AVAILABLE THE EXACT LENGTH, SIZE, MATERIAL, DEPTH AND ALL REQUIRED PERTINENT INFORMATION SHALL BE OBTAINED BY THE CONTRACTOR BY SURVEYING THE SITE. THE CONTRACTOR SHALL ALSO PROVIDE ALL LABOR AND MATERIAL FOR OFF-HOUR POINT OF CONNECTIONS.

ARCHITECT OF RECORD

DMJM H&N | AECOM

405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

DESIGN ARCHITECTS

WILLIAM MCDONOUGH + PARTNERS
Architecture + Community Design

700 EAST JEFFERSON STREET
CHARLOTTESVILLE, VIRGINIA 22902
T 434.979.1111 F 434.979.1112 www.mcdonoughpartners.com

CONSULTANTS

CIVIL ENGINEER:
DMJM HARRIS
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2501 F 714.567.2777

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T 714.567.2752 F 714.567.2729

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DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

LANDSCAPE CONSULTANT:
SITEWORKS STUDIO
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CHARLOTTESVILLE, VIRGINIA 22902

LIGHTING CONSULTANT:
LOISOS & UBBELOHDE
1917 CLEMENT AVENUE, BLDG 10A
ALAMEDA, CALIFORNIA 94501
T 510.521.3800 F 510.521.3820

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Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION LEGEND AND ABBREVIATIONS

SIZE	CAGE CODE		REV
D	25307	A232-0800- FP-001	
SCALE		INDEX	SHEET OF

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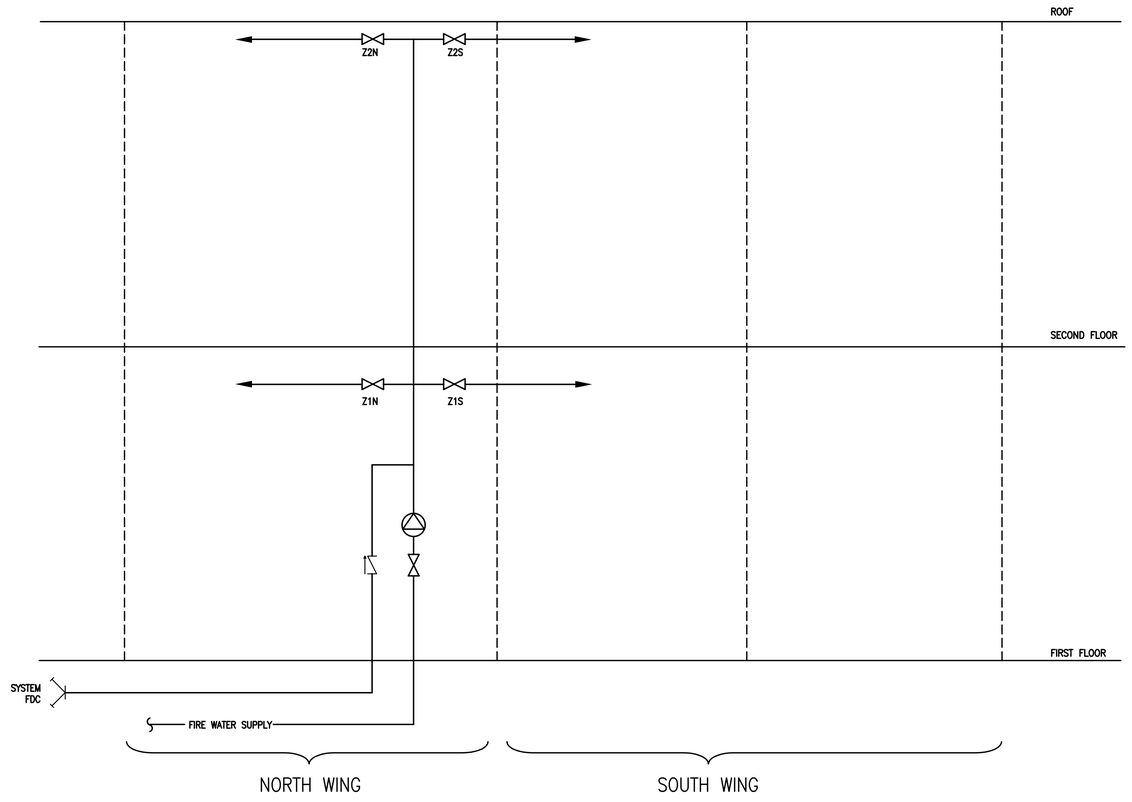
FIRE ALARM RISER NOTES:

A) CONNECTIONS TO FIRE ALARM RISER DIAGRAM SHOW DEVICE CONNECTIONS TO FACP. FOR DEVICE QUANTITIES AND LAYOUT SEE FLOOR PLANS. FINAL SYSTEM DESIGN AND SHOP DRAWING SUBMITTAL TO AOR/EOR IS BY FIRE ALARM CONTRACTOR.



FIRE SPRINKLER RISER DIAGRAM

SCALE: NONE

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SAN FRANCISCO, CALIFORNIA 94105
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Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION SINGLE LINE DIAGRAM

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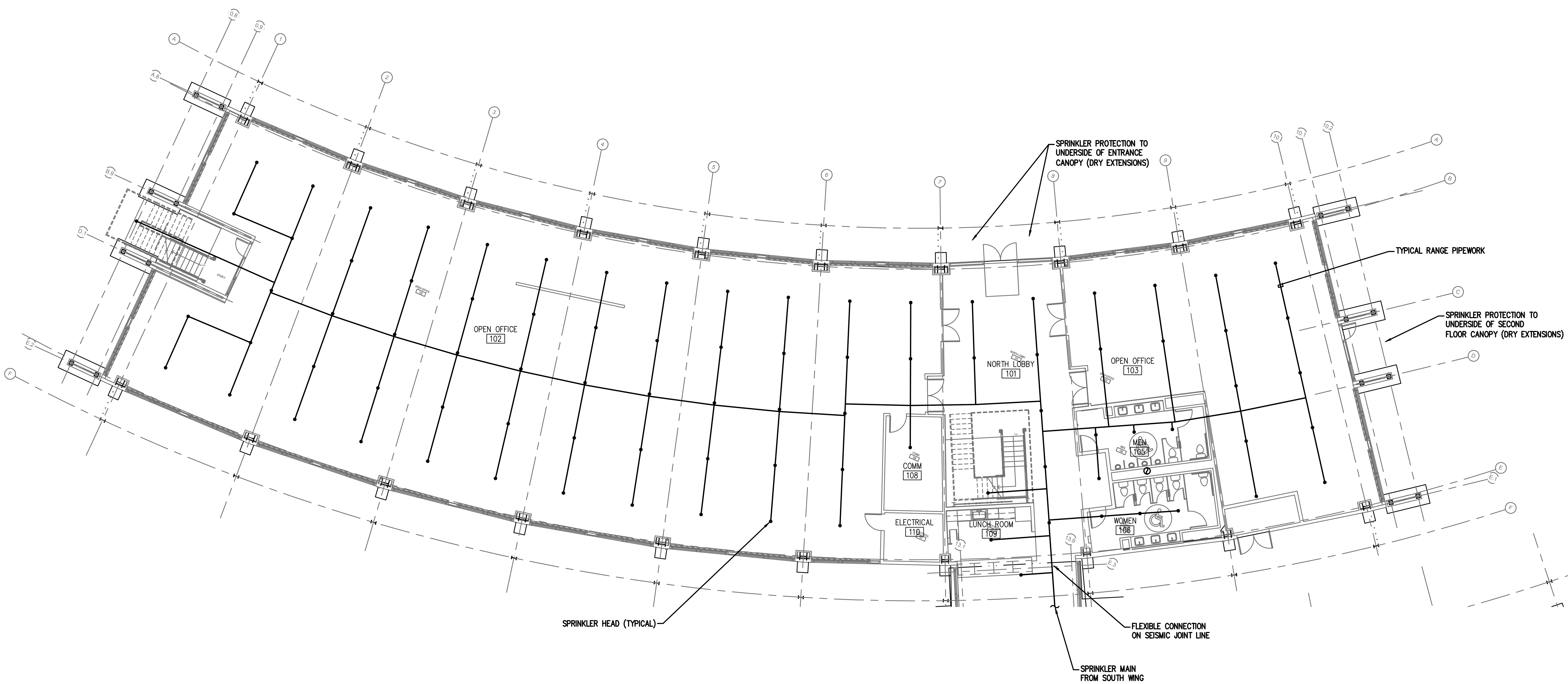
SHEET NOTES

1. SPRINKLER HEAD POSITIONS ARE NOTIONAL, AND SHOWN TO INDICATE COORDINATION WITH OTHER HIGH–LEVEL SERVICES. FINAL SPRINKLER HEAD CONTAINS TO BE DETERMINED BY SPECIALIST SPRINKLER CONTRACTOR.



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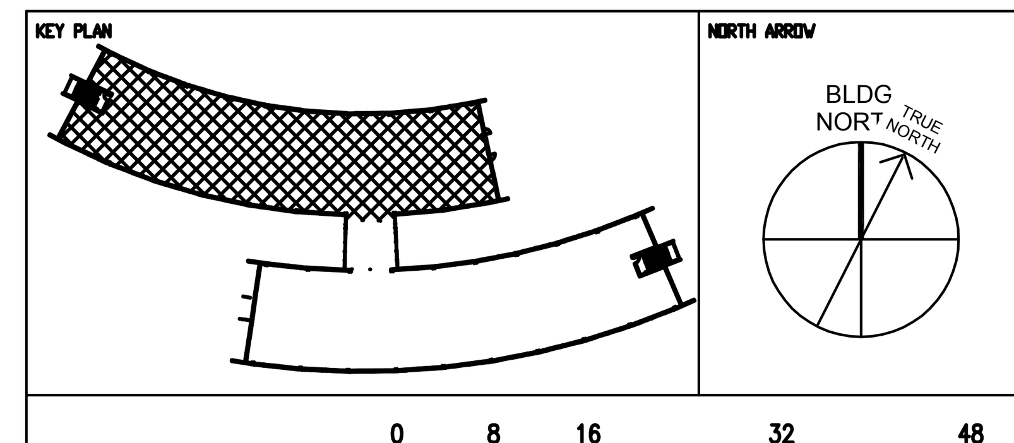
KEY PLAN

NORTH ARROW



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PROJMGR		DATE
REQUESTOR		DATE
R&QA		DATE
SAFETY		DATE
SUPERVISOR	S. PAINTER	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY
FIRE PROTECTION
PARTIAL FIRST FLOOR PLAN
NORTH WING

SIZE	CAGE CODE			REV
D	25307	A232-0800-	FP211	2
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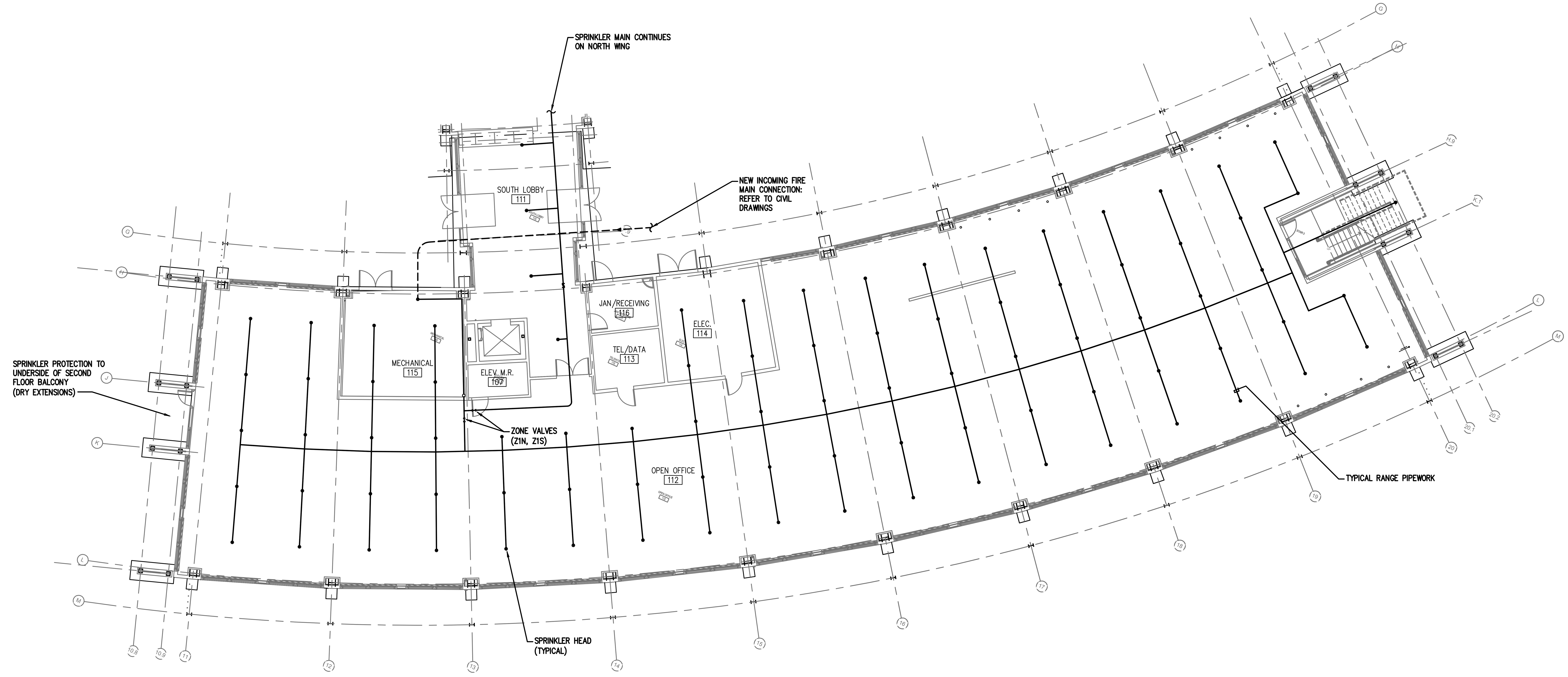

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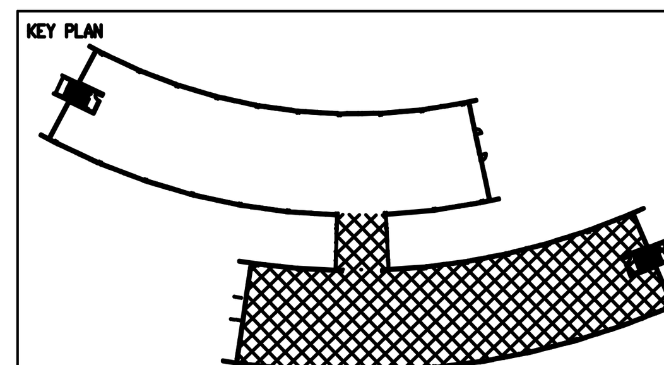
KEY PLAN



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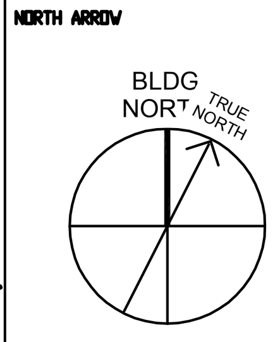

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R&QA		DATE
SAFETY		DATE
SUPERVISOR	S. PAINTER	DATE

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Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION
PARTIAL FIRST FLOOR PLAN
SOUTH WING

SIZE	CAGE CODE			REV
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SCALE	3/32" = 1'-0"	INDEX	SHEET	OF

1 PARTIAL FIRST FLOOR PLAN SOUTH BUILDING WEST

FP-213 | REF. | SCALE: 1/8" = 1'-0"

KEY PLAN

NORTH ARROW

BLDG NORTH / TRUE NORTH

1/8"=1' 0 4 8 16 24

ARCHITECT OF RECORD

DMJM H&N | AECOM

405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

DESIGN ARCHITECTS

WILLIAM MCDONOUGH + PARTNERS
Architecture + Community Design

700 EAST JEFFERSON STREET
CHARLOTTESVILLE, VIRGINIA 22902
T 434.979.1111 F 434.979.1112 www.mcdonoughpartners.com

CONSULTANTS

CIVIL ENGINEER:
DMJM HARRIS
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2501 F 714.567.2777

LANDSCAPE ARCHITECT:
FIRM NAME
ADDRESS
ADDRESS
PHONE

MECHANICAL, ELECTRICAL & PLUMBING ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

STRUCTURAL ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

LANDSCAPE CONSULTANT:
SITEWORKS STUDIO
826-C HINTON AVENUE
CHARLOTTESVILLE, VIRGINIA 22902

LIGHTING CONSULTANT:
LOISOS & UBBELOHDE
1917 CLEMENT AVENUE, BLDG 10A
ALAMEDA, CALIFORNIA 94501
T 510.521.3800 F 510.521.3820

CONSTRUCTION MANAGER:
FIRM NAME
ADDRESS
ADDRESS
PHONE

ARCHITECT/ENGINEER STAMP

PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE		
1	10/20/2008	30% PRICING
2	11/07/2008	30% DESIGN REVISION
3	12/12/2008	60% INTERNAL QA/QC & COST ESTIMATE
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6	02/16/2009	90% QAQC & COST ESTIMATE

MARK	DATE	DESCRIPTION
DRAWN	DATE	
DESIGNED	DATE	
CHECKED	DATE	
PRELIMER	DATE	
REQUESTER	DATE	
NASA	DATE	
SAFETY	DATE	
SUPERVISOR	DATE	

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION
PARTIAL FIRST FLOOR PLAN
SOUTH BUILDING WEST

SIZE	CAGE CODE		REV
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SCALE	INDEX	SHEET OF	

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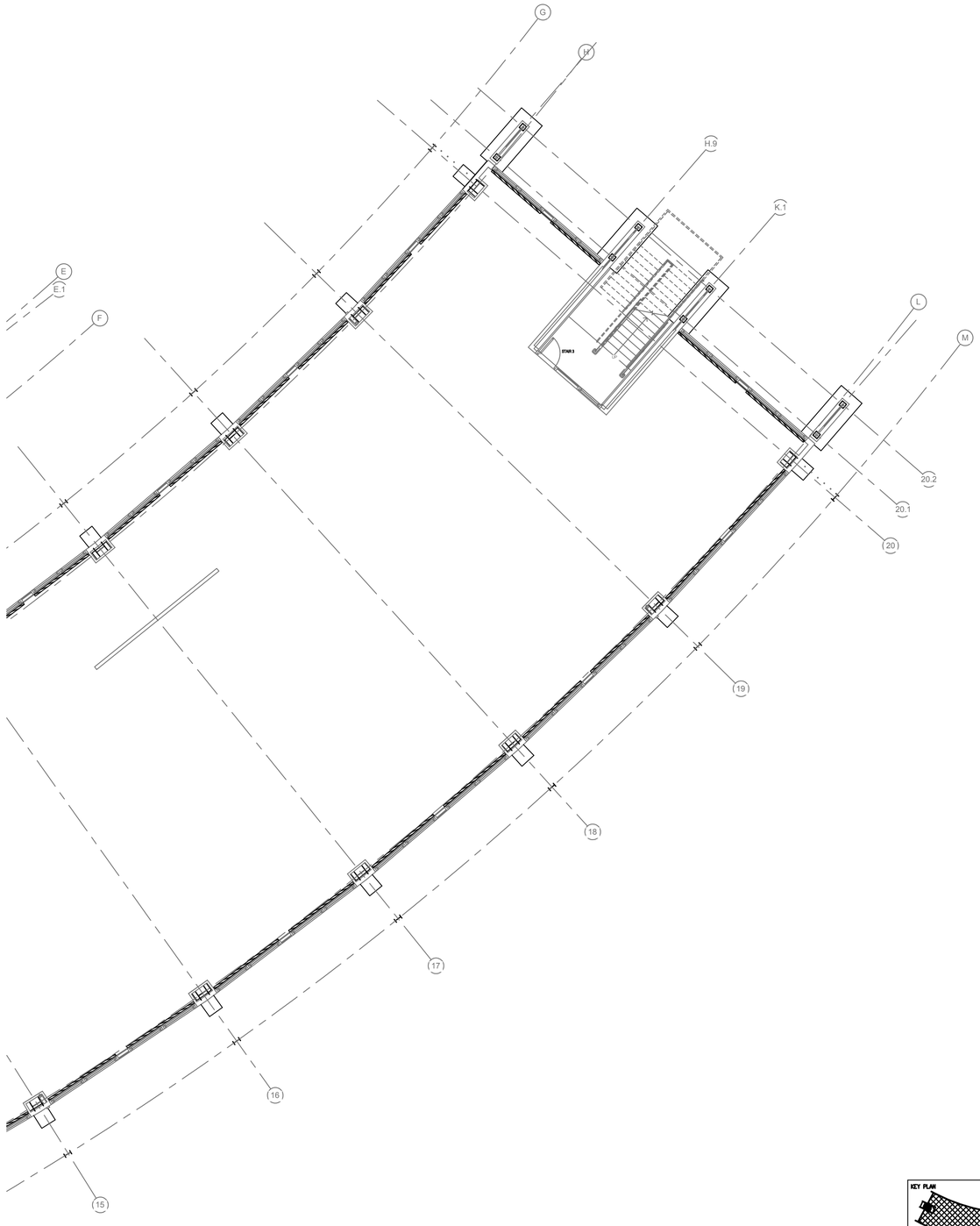
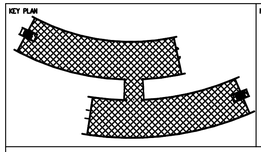


1 PARTIAL FIRST FLOOR PLAN SOUTH BUILDING EAST

FP-214 | REF. SCALE: 1/8" = 1'-0"

KEY PLAN



NORTH ARROW

1/8"=1' 0 4 8 16 24

ARCHITECT OF RECORD

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ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

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DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
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SITEWORKS STUDIO
826-C HINTON AVENUE
CHARLOTTESVILLE, VIRGINIA 22902

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Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION
PARTIAL FIRST FLOOR PLAN
SOUTH BUILDING EAST

SIZE	CAGE CODE		REV
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SCALE		INDEX SHEET OF	

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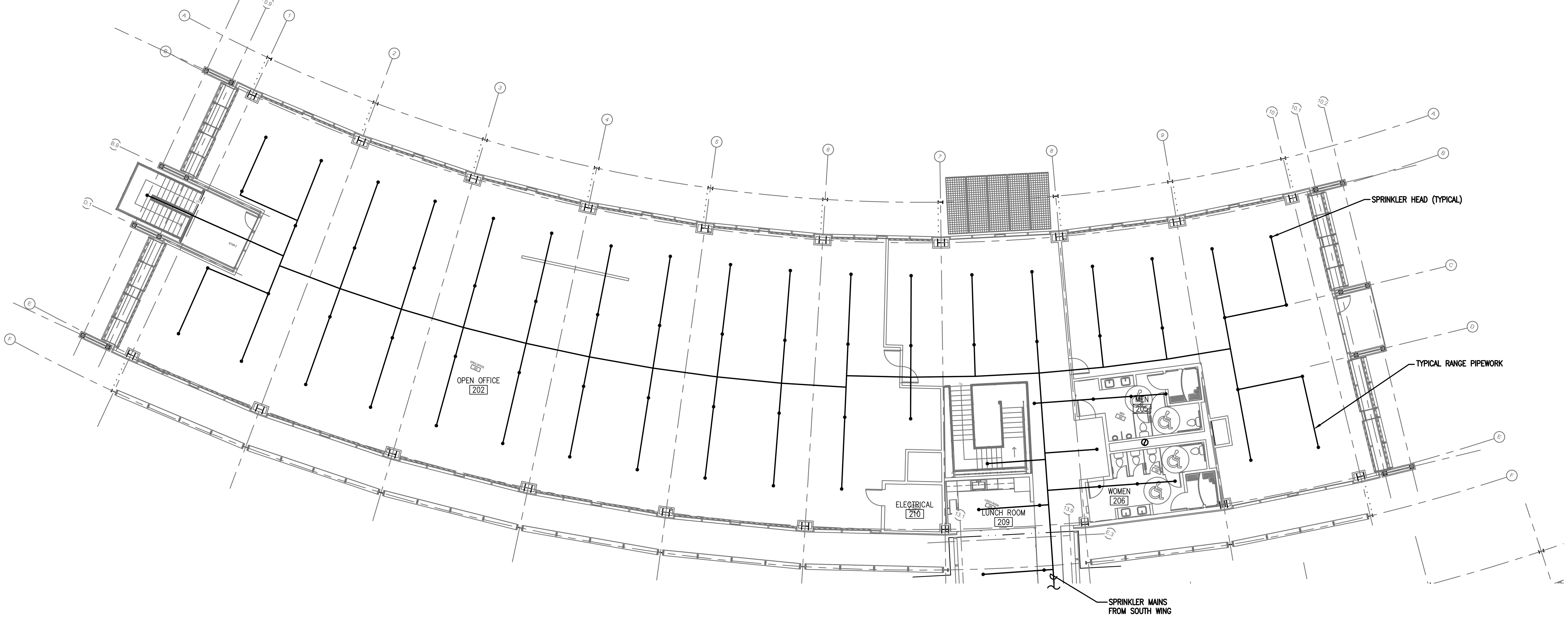
Xrefs: *xAFP01* *xARC01* *ASBR

SHEET NOTES

1. SPRINKLER HEAD POSITIONS ARE NOTIONAL, AND SHOWN TO INDICATE COORDINATION WITH OTHER HIGH–LEVEL SERVICES. FINAL SPRINKLER HEAD CONTAINS TO BE DETERMINED BY SPECIALIST SPRINKLER CONTRACTOR.



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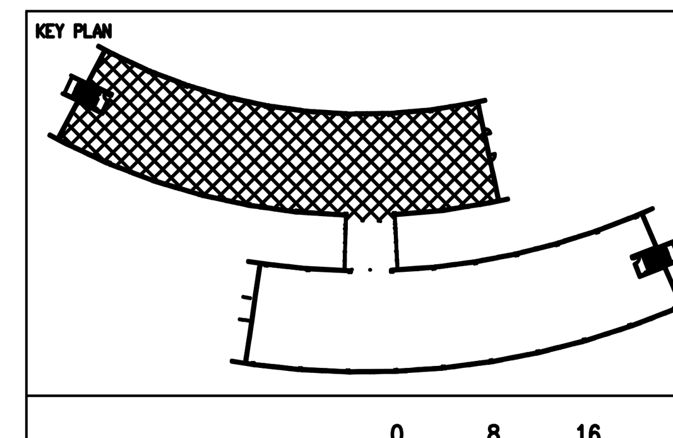

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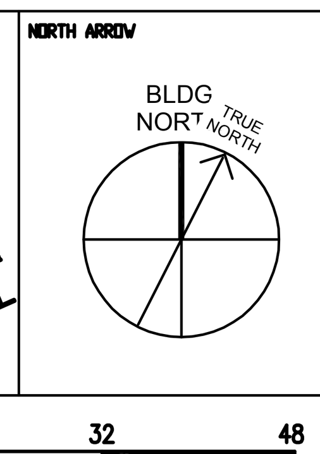

3/32"=1' 0 8 16 32 48

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DESIGNED	V. DANG	DATE
CHECKED	A. REED	DATE
PROJMGR		DATE
REQUESTOR		DATE
R&QA		DATE
SAFETY		DATE
SUPERVISOR	S. PAINTER	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION
PARTIAL SECOND FLOOR PLAN
NORTH WING

SIZE	CAGE CODE			REV
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SCALE	3/32" = 1'-0"	INDEX	SHEET	OF

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Xrefs: "xAFP02" "XBDR-SHORT" "xMPP02"

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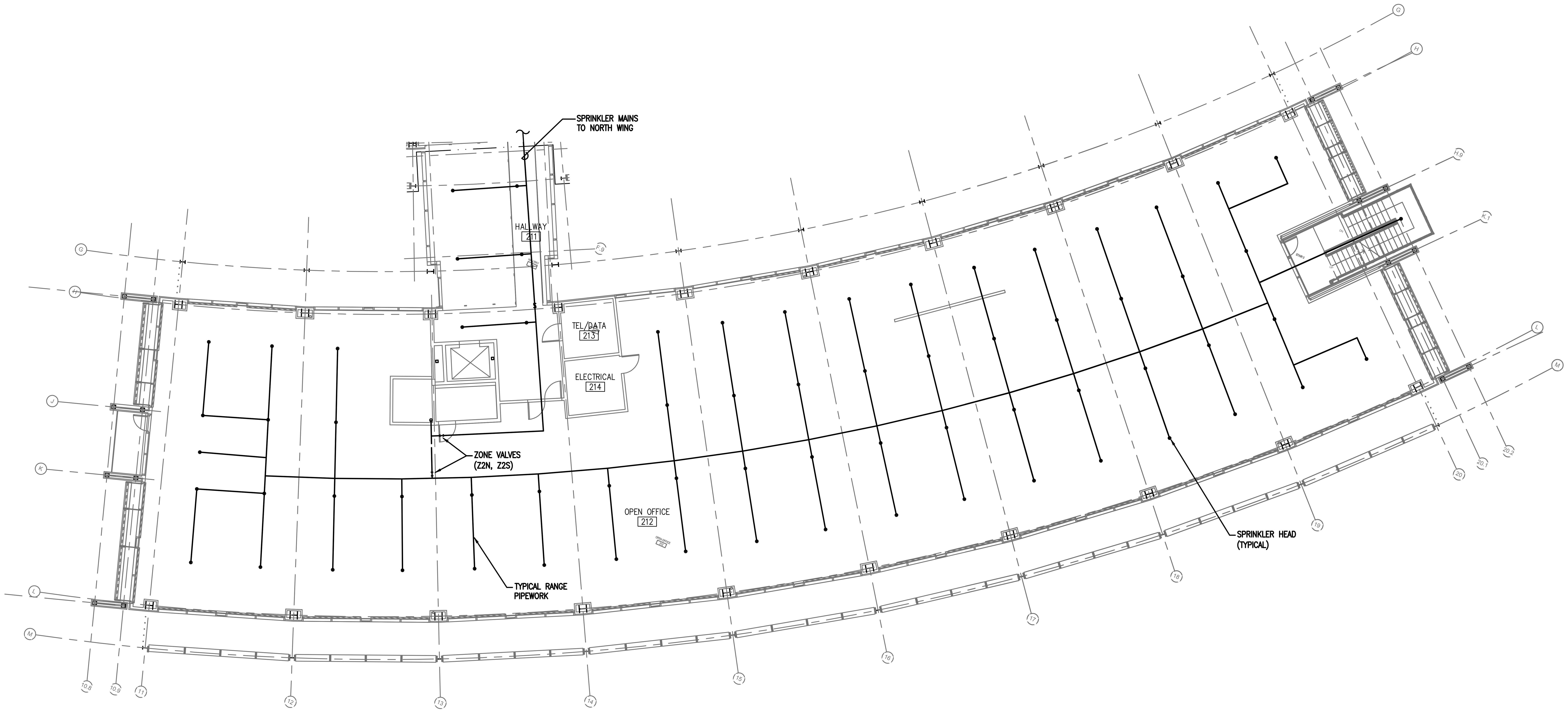

PROJECT STATUS

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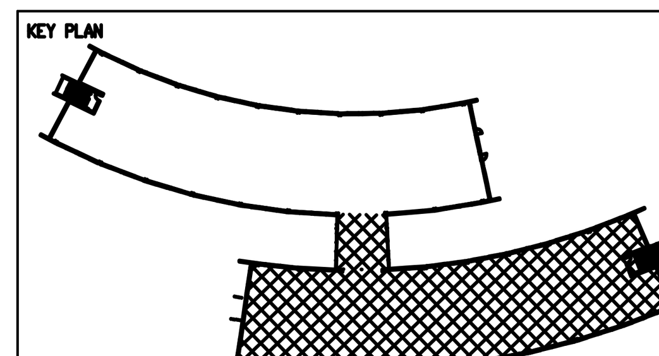
6	02/16/2009	90% QAQC & COST ESTIMATE

KEY PLAN



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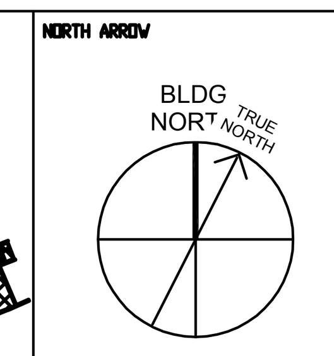

3/32"=1' 0 8 16 32 48

DRAWN	L.DICKENS	DATE
DESIGNED	V. DANG	DATE
CHECKED	A. REED	DATE
PROJMGR		DATE
REQUESTOR		DATE
R&QA		DATE
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SUPERVISOR	S. PAINTER	DATE

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N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION
PARTIAL SECOND FLOOR PLAN
SOUTH WING

SIZE	CAGE CODE			REV
D	25307	A232-0800-	FP222	2
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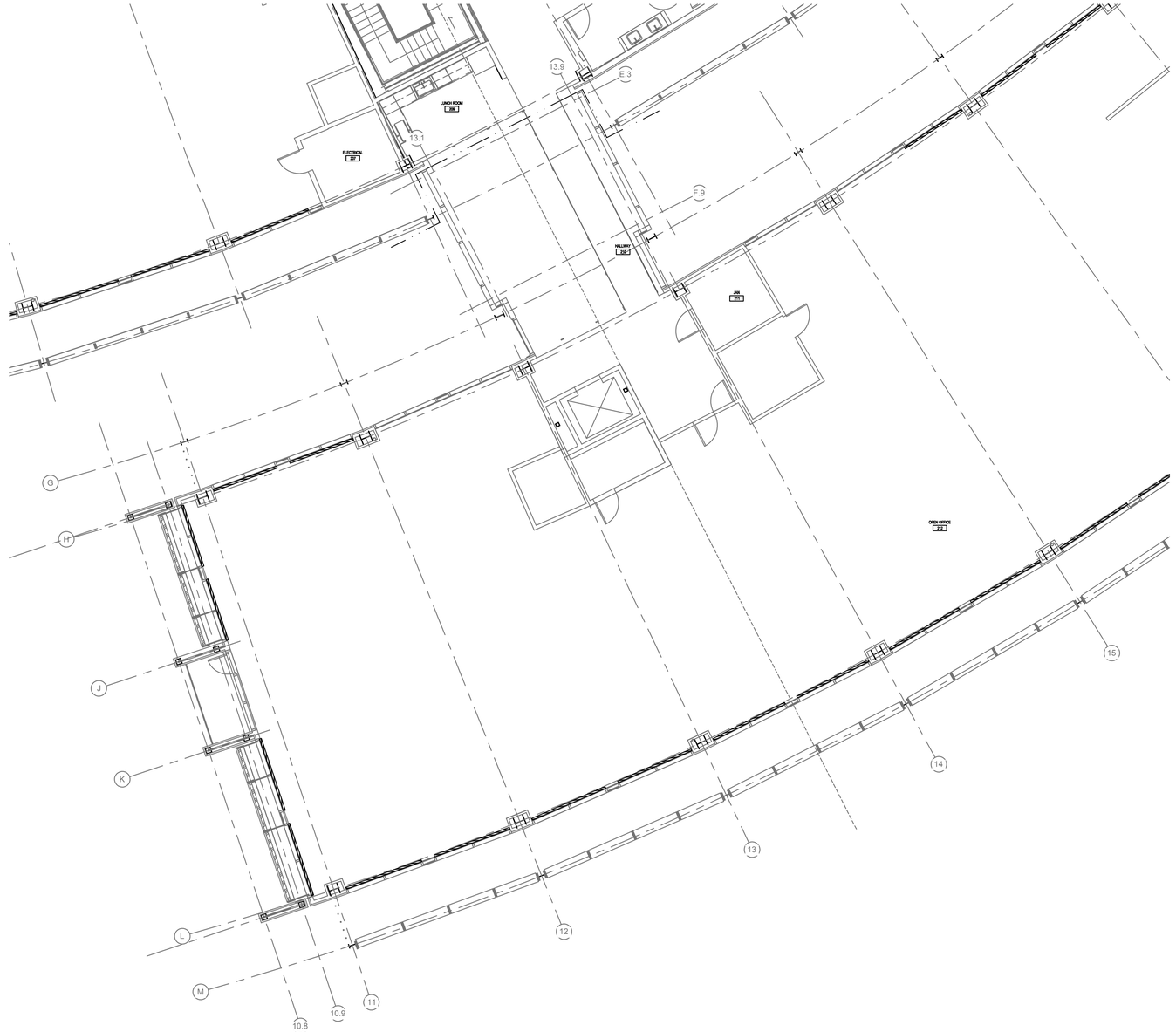

1 PARTIAL SECOND FLOOR PLAN– SOUTH BUILDING WEST

FP–223 | REF. | SCALE: 1/8" = 1'–0"

KEY PLAN

NORTH ARROW

BLDG NORTH / TRUE NORTH

1/8"=1' 0 4 8 16 24

ARCHITECT OF RECORD

DMJM H&N | AECOM

405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

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CONSULTANTS

CIVIL ENGINEER:
DMJM HARRIS
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2501 F 714.567.2777

LANDSCAPE ARCHITECT:
FIRM NAME
ADDRESS
ADDRESS
PHONE

MECHANICAL, ELECTRICAL & PLUMBING ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

STRUCTURAL ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

LANDSCAPE CONSULTANT:
SITEWORKS STUDIO
826-C HINTON AVENUE
CHARLOTTESVILLE, VIRGINIA 22902

LIGHTING CONSULTANT:
LOISOS & UBBELOHDE
1917 CLEMENT AVENUE, BLDG 10A
ALAMEDA, CALIFORNIA 94501
T 510.521.3800 F 510.521.3820

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Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION
PARTIAL SECOND FLOOR PLAN
SOUTH BUILDING WEST

SIZE	CAGE CODE		REV
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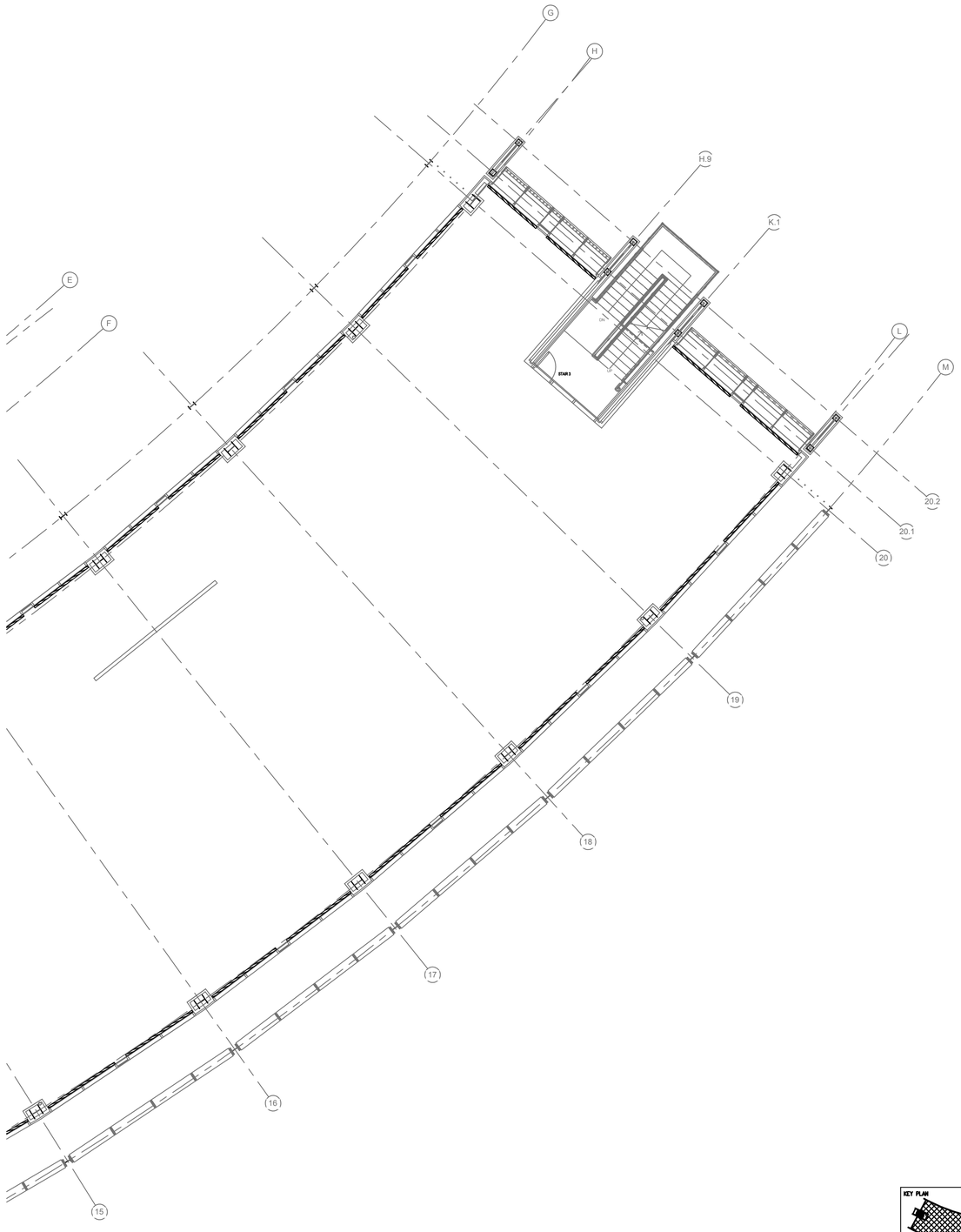

1 PARTIAL SECOND FLOOR PLAN– SOUTH BUILDING EAST

FP–224 | REF. | SCALE: 1/8" = 1'–0"

ARCHITECT OF RECORD

DMJM H&N | AECOM

405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

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Architecture + Community Design

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CHARLOTTESVILLE, VIRGINIA 22902
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CONSULTANTS

CIVIL ENGINEER:
DMJM HARRIS
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ORANGE, CALIFORNIA 92868
T 714.567.2501 F 714.567.2777

LANDSCAPE ARCHITECT:
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PHONE

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DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

STRUCTURAL ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

LANDSCAPE CONSULTANT:
SITEWORKS STUDIO
826-C HINTON AVENUE
CHARLOTTESVILLE, VIRGINIA 22902

LIGHTING CONSULTANT:
LOISOS & UBBELOHDE
1917 CLEMENT AVENUE, BLDG 10A
ALAMEDA, CALIFORNIA 94501
T 510.521.3800 F 510.521.3820

CONSTRUCTION MANAGER:
FIRM NAME
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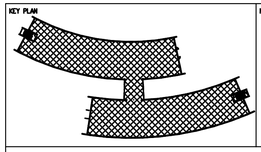
PHONE

ARCHITECT/ENGINEER STAMP

KEY PLAN



NORTH ARROW

1/8"=1' 0 4 8 16 24

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Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY
FIRE PROTECTION
PARTIAL SECOND FLOOR PLAN
SOUTH BUILDING EAST

SIZE	CAGE CODE		REV
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SCALE		INDEX	SHEET OF

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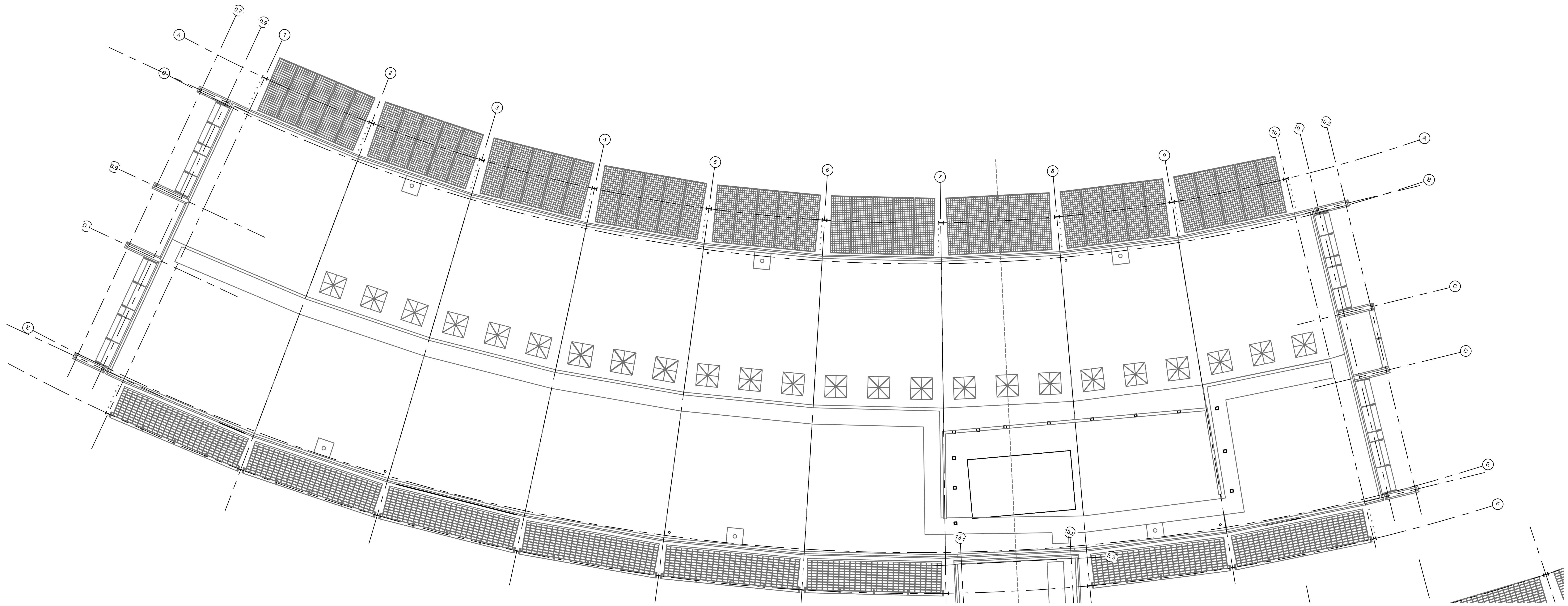
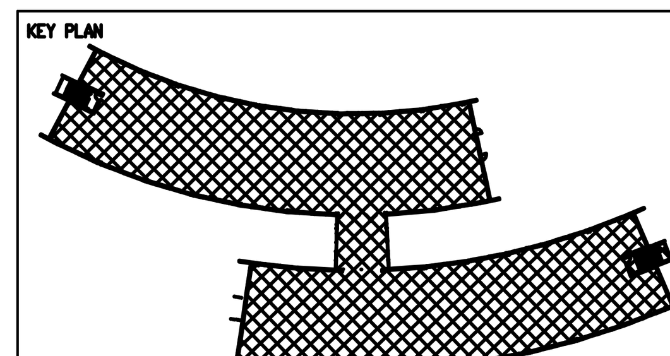


FIRE PROTECTION PARTIAL ROOF PLAN
1 | -NORTH BUILDING

FP231 | REF. SCALE: 3/32" = 1'-0"

KEY PLAN



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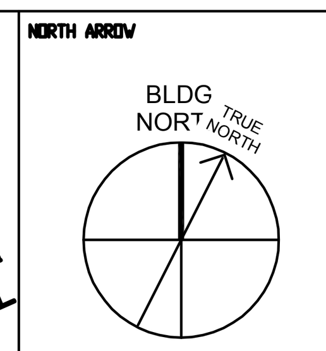

3/32"=1' 0 8 16 32 48

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R&QA		DATE
SAFETY		DATE
SUPERVISOR	S. PAINTER	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY
FIRE PROTECTION
PARTIAL ROOF PLAN
-NORTH BUILDING

SIZE	CAGE CODE			REV
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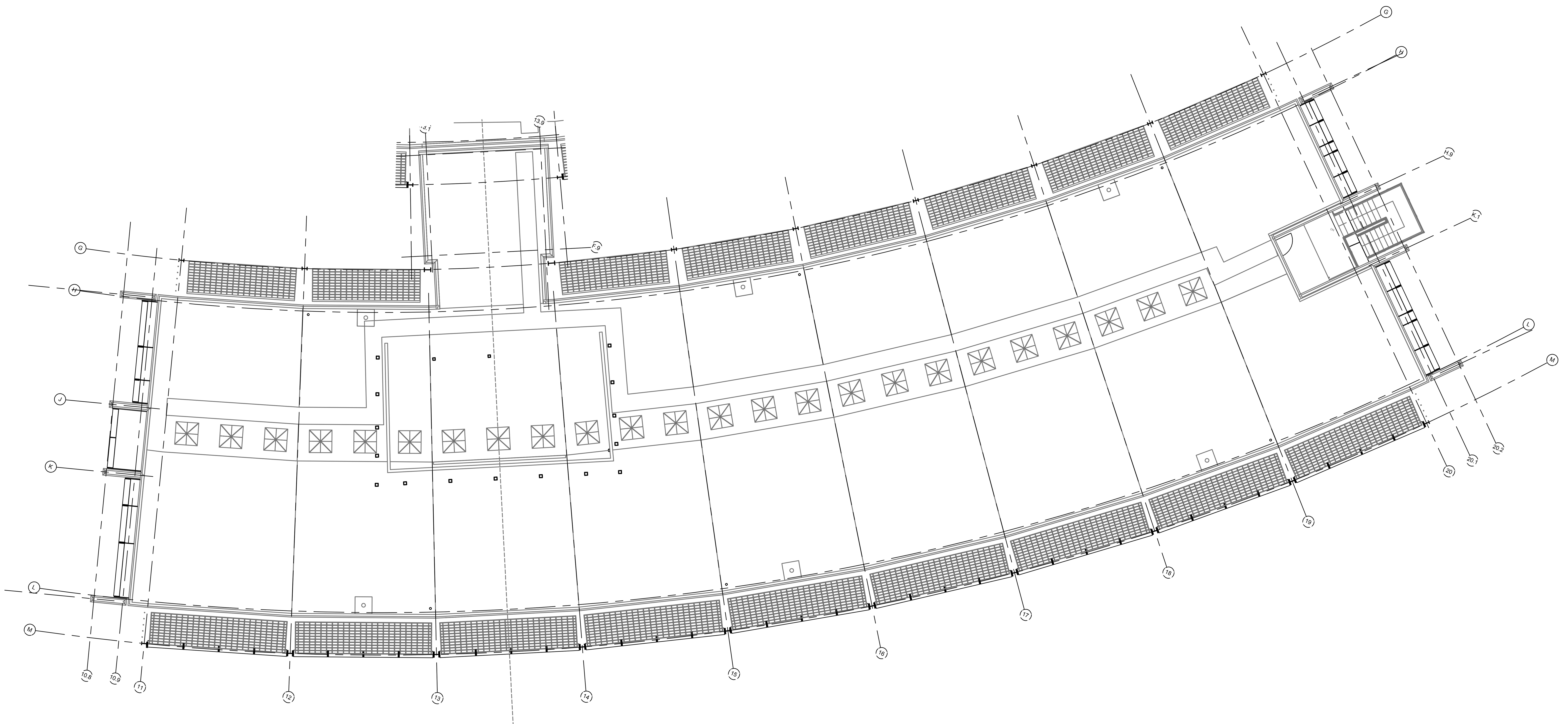
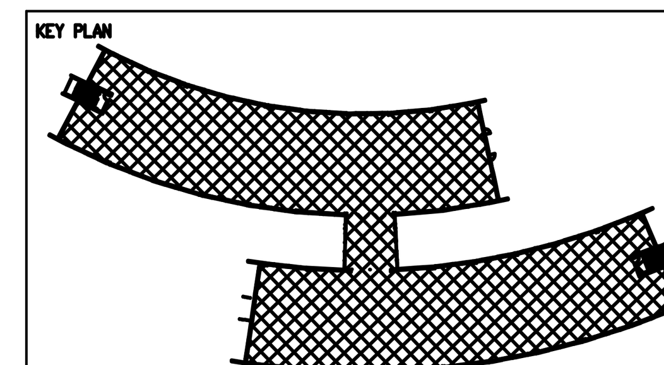


FIRE PROTECTION PARTIAL
1 | ROOF PLAN–SOUTH BUILDING

FP232 REF. SCALE: 3/32" = 1'–0"

KEY PLAN



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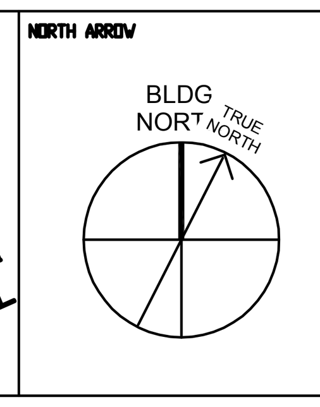

3/32"=1' 0 8 16 32 48

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SUPERVISOR	S. PAINTER	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY
FIRE PROTECTION
PARTIAL ROOF PLAN
–SOUTH BUILDING

SIZE	CAGE CODE			REV
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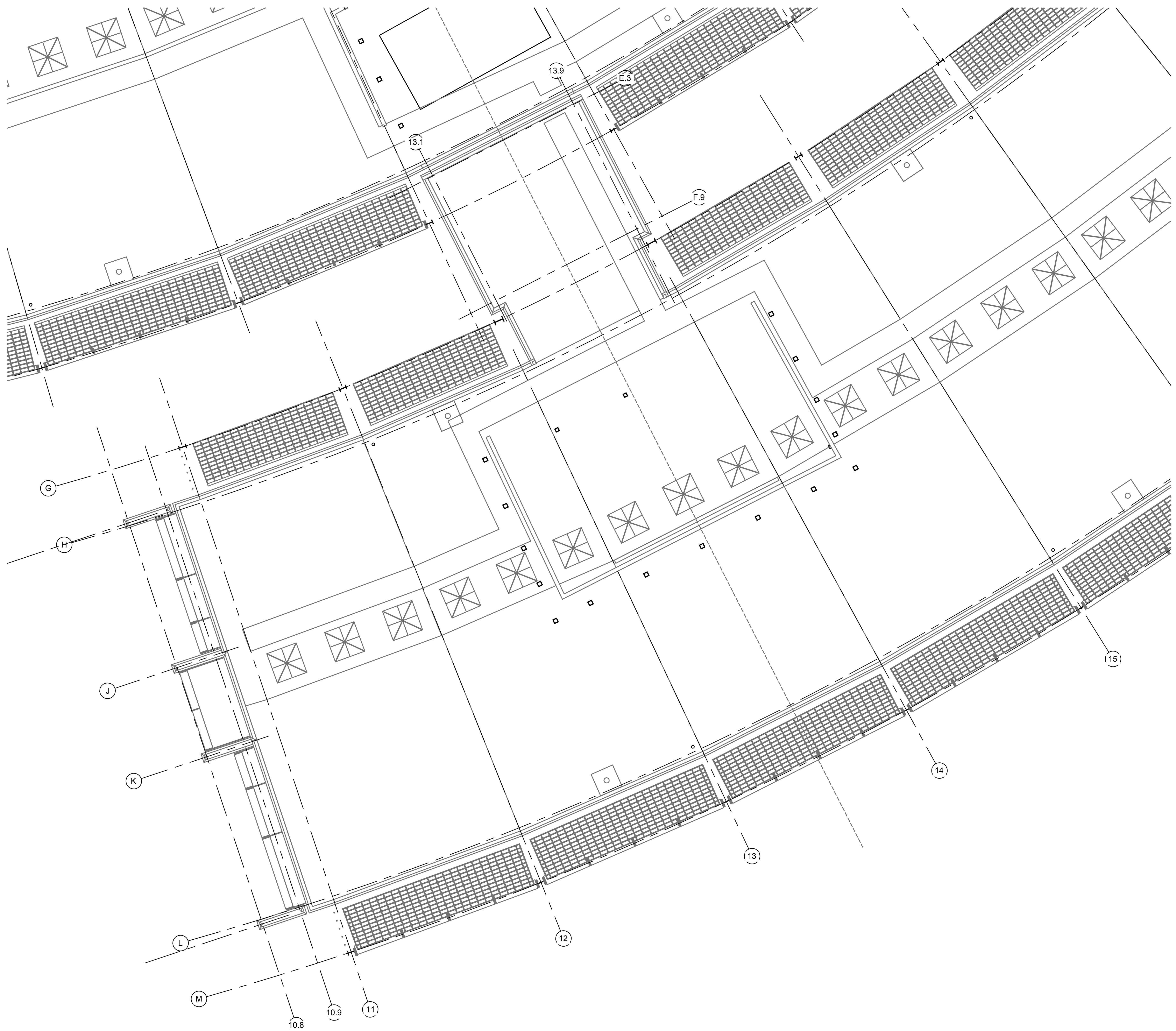
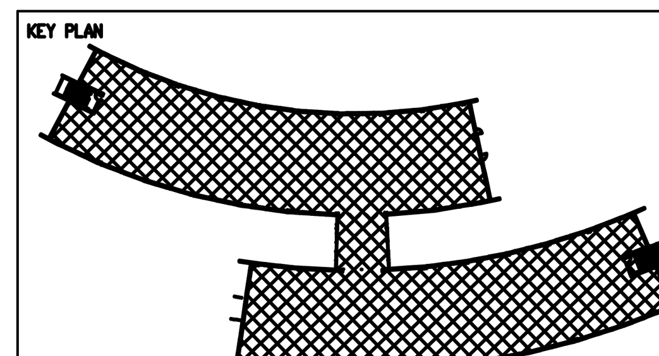


PARTIAL ROOF PLAN
1 | SOUTH BUILDING WEST

FP-233 | REF. SCALE: 1/8" = 1'-0"

KEY PLAN



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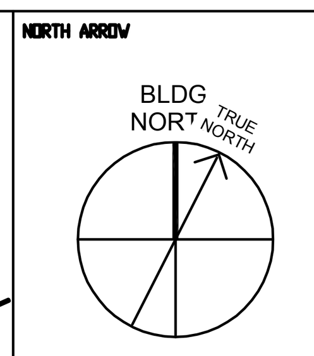

1/8"=1' 0 4 8 16 24

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T 415.365.3200 F 415.267.4957 www.dmjmhn.com

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700 EAST JEFFERSON STREET
CHARLOTTESVILLE, VIRGINIA 22902
T 434.979.1111 F 434.979.1112 www.mcdonoughpartners.com

CONSULTANTS

CIVIL ENGINEER:
DMJM HARRIS
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2501 F 714.567.2777

LANDSCAPE ARCHITECT:
FIRM NAME
ADDRESS
ADDRESS
PHONE

MECHANICAL, ELECTRICAL & PLUMBING ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

STRUCTURAL ENGINEER:
DMJM H&N AECOM
999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

LANDSCAPE CONSULTANT:
SITEWORKS STUDIO
826-C HINTON AVENUE
CHARLOTTESVILLE, VIRGINIA 22902

LIGHTING CONSULTANT:
LOISOS & UBBELOHDE
1917 CLEMENT AVENUE, BLDG 10A
ALAMEDA, CALIFORNIA 94501
T 510.521.3800 F 510.521.3820

CONSTRUCTION MANAGER:
FIRM NAME
ADDRESS
ADDRESS
PHONE

ARCHITECT/ENGINEER STAMP

PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE

MARK	DATE	DESCRIPTION
1	10/20/2008	30% PRICING
2	11/07/2008	30% DESIGN REVISION
3	12/12/2008	60% INTERNAL QA/QC & COST ESTIMATE
4	12/19/2008	60% PRE-FINAL, NASA REVIEW
5	01/19/2009	60% FINAL ISSUE TO NASA
6	02/16/2009	90% QAQC & COST ESTIMATE

DRAWN	DATE
DESIGNED	DATE
CHECKED	DATE
PROJMGR	DATE
REQUESTOR	DATE
R&QA	DATE
SAFETY	DATE
SUPERVISOR	DATE

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY
FIRE PROTECTION
PARTIAL ROOF PLAN
SOUTH BUILDING WEST

SIZE	CAGE CODE			REV
D	25307	A232-0800-	FP-233	
SCALE		INDEX	SHEET OF	

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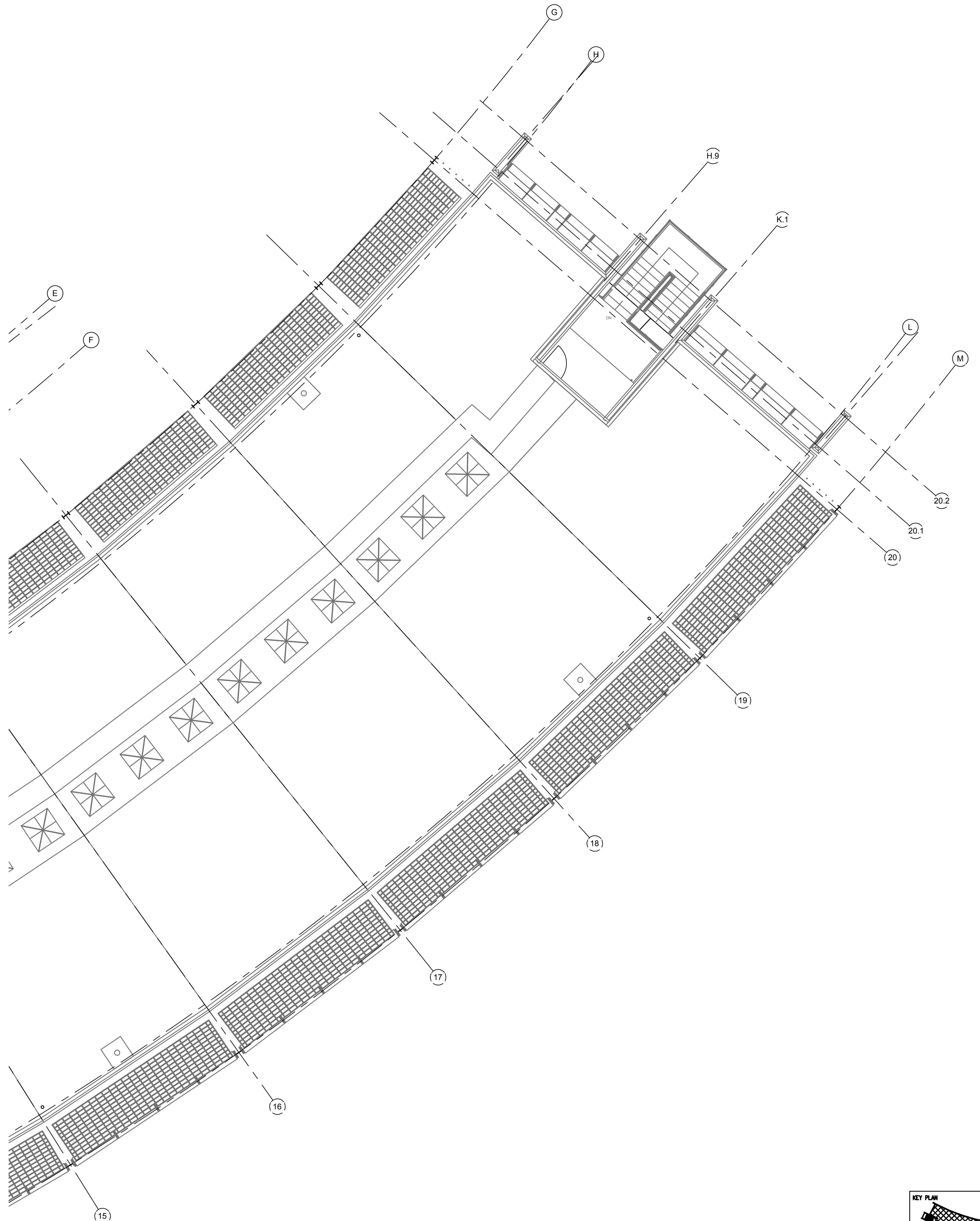
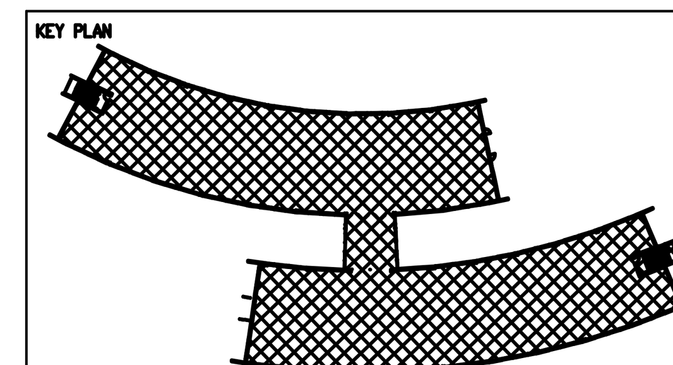


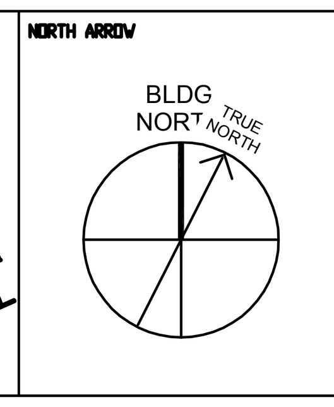
PARTIAL ROOF PLAN
1 SOUTH BUILDING EAST

FP-234 REF. SCALE: 1/8" = 1'-0"

KEY PLAN



NORTH ARROW



1/8"=1' 0 4 8 16 24

ARCHITECT OF RECORD

DMJM H&N | AECOM

405 HOWARD STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94105
T 415.365.3200 F 415.267.4957 www.dmjmhn.com

DESIGN ARCHITECTS

WILLIAM MCDONOUGH + PARTNERS
Architecture + Community Design

700 EAST JEFFERSON STREET
CHARLOTTESVILLE, VIRGINIA 22902
T 434.979.1111 F 434.979.1112 www.mcdonoughpartners.com

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999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

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999 TOWN AND COUNTRY ROAD
ORANGE, CALIFORNIA 92868
T 714.567.2752 F 714.567.2729

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826-C HINTON AVENUE
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ALAMEDA, CALIFORNIA 94501
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Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION PARTIAL ROOF PLAN SOUTH BUILDING EAST

SIZE	CAGE CODE			REV
D	25307	A232-0800-	FP-234	
SCALE		INDEX	SHEET OF	

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ARCHITECT OF RECORD

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405 HOWARD STREET, SUITE 400
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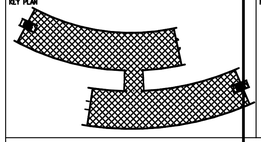
KEY PLAN



NORTH ARROW

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SUPERVISOR	DATE	

Ames Research Center
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY

FIRE PROTECTION DETAILS

SIZE	CAGE CODE		REV
D	25307	A232-0800- FP-401	
SCALE		INDEX	SHEET OF

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